Y2K: WILL WE GET THERE ON TIME?

JOINT HEARING

BEFORE THE

COMMITTEE ON TRANSPORTATION
AND INFRASTRUCTURE

AND THE

SUBCOMMITTEE ON TECHNOLOGY

OF THE

COMMITTEE ON SCIENCE

AND THE

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT,
INFORMATION, AND TECHNOLOGY

OF THE

COMMITTEE ON GOVERNMENT REFORM AND
OVERSIGHT

AND

HEARINGS

BEFORE THE

COMMITTEE ON TRANSPORTATION
AND INFRASTRUCTURE

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

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Y2K: WILL WE GET THERE ON TIME?

TUESDAY, SEPTEMBER 29, 1998

U.S. HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, JOINT WITH THE SUBCOMMITTEE ON TECHNOLOGY, COMMITTEE ON SCIENCE, AND THE SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY, COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT,
WASHINGTON, DC.

The committees met, pursuant to notice, at 9:36 a.m., in room 2167, Rayburn House Office Building, Hon. Bud Shuster (chairman of the committee) presiding.

The CHAIRMAN. The committee will come to order.

Before we begin today's business, I would like to welcome our esteemed colleagues for this very important Y2K Task Force. The hearing will be conducted jointly between the T&I Committee and the Task Force. Chairman Horn and Chairwoman Morella and their respective subcommittees have taken the leadership in the House on this Y2K computer glitch. We are very fortunate that they will be participating today.

Today's hearing will be the first in a series of hearings held by the Transportation and Infrastructure Committee. The focus is on the year 2000 computer glitch as it relates to transportation and infrastructure. The poll released just last week indicates that nearly half of all the Americans are worried about what will happen midnight January 1, 2000. With fewer than 460 days until the new millennium, the committee is concerned that the transportation community will fall victim to the Y2K bug. The year 2000 is an immovable object. We have one chance to get it right. While we do not wish to propagate a doomsday scenario, we must be certain that computer failures will not jeopardize public health and safety. We have an obligation to assist and to assess the risk, and if needed, bring the full weight of the committee to bear on this critical issue.

Today's hearing will focus on problems facing the aviation industry. To date, most attention is focused on the FAA and the air traffic control system. While this is critical to aviation safety, it is only one of many issues confronting civil aviation. The aviation community realizes that its systems are interdependent. Y2K compliant airlines need Y2K compliant airports, electronics, and air traffic controls. The industry as a whole will not be able to function if any one of these systems fails. The community must work together in order to avoid unnecessary safety and economic problems.

Today we will hear from a number of distinguished witnesses from all aspects of the aviation sector. First, we will welcome my dear friend. I was going to say my old friend, but I will say my long-time friend instead, former chairman of the Committee on Government Reform and Oversight, and a former member of this committee, Bill Clinger. Chairman Clinger brings a wealth of knowledge and experience.

Next, the Honorable Jane Garvey, FAA administrator, and General John J. Kelly, assistant administrator for weather services at the National Oceanic and Atmospheric Administration, to discuss the administration's efforts on Y2K.

We will hear the testimony from a panel of experts on the year 2000 computer glitch. Also, we will hear from a panel representing the various aspects of the aviation industry. Today's witnesses are leaders in the aviation industry and will discuss their experience with solving the Y2K problem.

On a personal note, I might report that before I lost my mind and ran for Congress, I was in the computer business for 17 years. Indeed, was involved in installing the first univac file computer as an air traffic control computer in the Pittsburgh Airport. So I sometimes think I know more than I want to know about computer problems. Particularly, I am told that something like 50 percent of the coding down at air traffic control is still in machine coding. Machine coding, for any of you who have been in the computer industry long enough know that it is of enormous difficulty to go in and change machine coding. Bad enough to have to deal with COBOL operating systems. But machine coding is the most difficult of all, and requires the most skilled programmers and systems analysts. So I am particularly sensitive to the problems that our country faces and that we face in aviation in particular as a result of the Y2K problem. Certainly I am willing and anxious to be helpful in any way that we can be.

Does anybody else seek recognition? Yes, Jim?

Mr. KUCINICH. Thank you very much, Mr. Chairman, and members of the committee. I first of all want to thank the Chair, as well as Chairman Horn and Chairwoman Morella and others for holding today's joint hearing on the implications of the year 2000 computer problem for the aviation industry. It is fitting that today we bring together the expertise of three congressional committees, the Government Reform Committee, the Science Committee, and the Transportation and Infrastructure Committee, to identify the potential threat to aviation posed by the year 2000 problem. It is fitting because this is a computer problem that knows no jurisdictional bounds.

Our committees have held numerous hearings on the Y2K issue in the past 2 years. We have learned that this is a problem that will impact all sectors of the economy, from banking to telecommunications, agriculture to transportation. In some cases, Y2K problems will cause inconvenience, in others, economic losses. However, in some cases the Y2K problem, if it is not fixed, could lead to loss of life. That's why today's hearing on the aviation industry is so important.

Some gloom and doom scenarios predict that come January 1, 2000, planes will fall out of the sky. I don't believe this will happen. But I am concerned how the Federal Aviation Administration and the aviation industry will handle the transition to the year 2000. Last month the GAO testified that it was doubtful that the FAA would have all of its critical systems fixed before January 1, 2000. This is a finding of concern to all of us. If FAA computers are not fixed, then we face a potential shutdown of the entire aviation industry. FAA responded to this GAO report and assured Congress that it would have all critical systems fixed in time. I am pleased that the FAA is appearing before this committee today, and look forward to a full accounting of their progress. I must say that given the work and the reputation of Jane Garvey, Administrator, I think this country should have confidence that the FAA will be up to the challenge.

But even if the FAA is fully Y2K compliant, that will not be enough to keep the aviation industry healthy. This industry relies upon thousands of computers to perform billions of calculations, covering everything from weather forecasts to scheduling and ticketing. Virtually every aspect of flying a plane, from maintenance to luggage tracking, relies on computers.

The aviation industry faces more complex Y2K problems than almost any other industry. The sheer number of computers, the complications caused by frequent data exchanges between different organizations, and the international coordination required in the industry all make the problem extraordinarily complicated and time consuming.

I am pleased today that we will hear from a number of different members of the aviation community and hear about potential problems faced in different parts of the aviation industry. The Y2K problem is not yet high profile. It doesn't make the headlines on the evening news, yet. But if the problem is not fixed, it will have enormous implications for the aviation industry and the American economy.

I am pleased, Mr. Chairman, that we are holding these hearings, and hope that come January 1, 2000, the aviation industry will be able to guarantee to the public that it will be safe to fly. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. Mr. Duncan.

Mr. DUNCAN. Thank you, Mr. Chairman. I first of all want to thank you for holding these hearings on the Y2K problem. This is a very important topic, as all of us know, and one that needs I think as much attention as possible. I also want to thank my good friends, Congresswoman Connie Morella and Congressman Steve Horn for their willingness to hold this joint hearing today with the subcommittees that they Chair. Of course this hearing will focus on aviation issues. The three of us share an intense interest, as does Chairman Shuster, in ensuring that the FAA and the aviation industry are prepared for the new millennium.

I would say that both Congresswoman Morella and Congressman Horn are certainly experts on the Y2K issue. I am so pleased that they will be a part of the hearing today because I know their participation will significantly increase the hearing's value. I also want to welcome the other members of the House Task Force on Y2K.

The year 2000 problem has been referred to as a slow moving disaster. Because it is slow moving, some Government agencies, businesses, and individuals have placed this problem on the back burner and they have not given it the priority it deserves. I have followed closely the many news reports of the potential Y2K problems. I have heard people warn that prior to the turn of the century, we will all have to prepare for the worst. For instance, some people warn that before January 1, 2000, everyone should have extra cash on hand because it is likely that ATMs and the bank computers may break down in some way. I read recently that the Federal Reserve is printing $50 billion extra in cash to prepare for this potential situation.

I have heard some experts warn that even the most basic computer chips like those in some cars will fail and leave us stranded. There have been claims that without proper preparation, January 1, 2000, will arrive and there will be no electricity. It really is a mind-boggling problem that the computers, which do so much for us, can't recognize that we are going from the year 1999 to the year 2000 and it's going to be so costly.

However, I would like to believe that the doomsday scenarios that some people are writing and speaking of will not be the case. I would like to see and hope to see the new millennium arrive with only celebration, not trepidation. In fact, that is why we are here today. I have been told that one-third of the problems associated with the year 2000 conversion are within the transportation sector. We want to make sure that the Government and the transportation industry properly prepares its systems for the year 2000.

Regarding the potential Y2K problems in aviation, the witnesses we have today represent a great range of aviation interests. As Chairman Shuster has already welcomed these witnesses, I will simply say that we are very pleased to have our good friend, the former ranking member of this subcommittee, Mr. Clinger with us. And Administrator Garvey, I understand that Administrator Garvey has identified over 400 systems in the FAA which are mission critical and that may have a Y2K problem. We have General Kelly of NOAA here today, whose organization is responsible for several weather, and therefore safety related systems that must be Y2K compliant. We also are honored to have Mrs. Carol Hallett, the president and CEO of the Air Transport Association, representing most of the major U.S. airlines, all of which must be Y2K compliant for clearly safety reasons. We have representatives from two airports, Wichita and the Metropolitan Washington Airports Authority.

I just might add, Mr. Chairman, that I think one of the best summaries of this problem was written and appeared yesterday in the Wall Street Journal by a member of the other body, Senator Bennett. He said among other things, the problem is global, and the greatest amount of time connected with solving this problem is tied up in testing. He said you can have all your computers and systems under control and still get hurt. He also said that some systems won't work even after being remediated. I think he is doing a lot to try to call attention to this situation.

So I think this is one of the most important hearings that this committee has probably ever held. I am just very pleased to be a small part of it. I thank you very much for giving me this time.

The CHAIRMAN. I thank the gentleman. The Chair would note that all Members' opening statements will be put in the record. Does anybody else seek recognition?

Mr. Barcia.

Mr. BARCIA. Thank you, Mr. Chairman. I want to join my colleagues in welcoming everyone to this morning's hearing. I would like to say a few words about FAA's Y2K efforts. At our February hearing, the situation at FAA was grim. FAA was on the OMB watch list and did not have a comprehensive Y2K plan in place. Since then, the FAA under the leadership of Administrator Garvey, has made outstanding progress.

Yet while much has been done, much still remains. The FAA got a very late start in its Y2K efforts. They will be hard-pressed to meet their ambitious schedule. As I outlined my concerns in August, I am still concerned about FAA's plans to deal with the issue of data exchanges as well as their plans for end-to-end testing.

In addition, I have been concerned with the progress made by airlines and airport authorities in addressing the Y2K problem. The efficient operation of the national airspace system is the result of the successful public-private partnership. Efficient air service can only continue if both the airlines and the FAA are Y2K compliant on January 1, 2000.

I hope that our witnesses will explain their plans for Y2K compliance, as well as discuss their experience with obtaining the information that they need. I also hope they will make any recommendations as to how we might improve our efforts to address this very serious problem. Finally, I would encourage any of our witnesses to discuss the implications of the Y2K problem on international air service as well as any knowledge of what their international counterparts are doing also to address this issue.

I want to thank our witnesses for taking the time to appear before our committees. I look forward to their comments.

The CHAIRMAN. I thank the gentleman. The Chair would announce that when we do move to the testimony from the witnesses, because this is a joint hearing, and the tradition and rules of the Government Reform Committee are that we swear in the witnesses, we will be swearing in witnesses. I think there is a certain poetic justice to this because the former chairman of that committee was Congressman Clinger, who insisted upon swearing in witnesses, and he will be the first witness to be sworn in, in just a few minutes.

Because this is an aviation-oriented hearing, I am going to turn the gavel over now to Congressman Duncan. There are other Members who would like to be recognized I understand.

Mr. DUNCAN [presiding]. Thank you very much, Chairman Shuster. I think the next person to give a statement is Congressman Horn.

Mr. HORN. Thank you very much, Mr. Chairman. I will be brief. I would like my full remarks put in the record at this point.

[The prepared statements of Mr. Horn, Mr. Oberstar, Mr. Lipinski, Mrs. Morella, and Mr. Costello follow:]

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"Aviation Y2K: Will We Get There In Time?"

September 29, 1998
OPENING STATEMENT
REPRESENTATIVE STEPHEN HORN (R-CA)

Chairman, Subcommittee on Government Management, Information, and Technology

The Subcommittee on Government Management, Information, and Technology first held hearings on the Year 2000 computer problem in April of 1996. Since that time, we have continued to raise the issue in numerous hearings on the progress of Federal agencies. We also recently completed a series of field hearings in New York City, Indianapolis, New Orleans, and the areas of Dallas, Cleveland, and Chicago.

Mrs. Morella and I have repeatedly called on the President to use the "bully pulpit" to inform American citizens on the significance of this issue and to provide strategic national guidance. The President finally took action by speaking on this topic at the National Academy of Science, which, to me, is a little like preaching to the choir.

The White House also established a task force, called the President's Council on the Year 2000 Conversion, which is headed by John Koskinen. Mr. Koskinen is a former Deputy Director for Management at the Office of Management and Budget and is well respected by this Subcommittee. However, he has a tough job to do and it is still unclear how this council will provide the strategic direction needed for the U.S. to adequately prepare for the Year 2000.

This is why it is critical that we continue to hold hearings on the Y2K readiness of essential sectors of this country - such as transportation and in particular, the aviation industry. I applaud Chairman Shuster for his participation in today's hearing. The Subcommittee on Government Management, Information, and Technology and Mrs. Morella's Subcommittee on Technology have held hearings on the FAA's Y2K progress. The news hasn't always been good. The GAO still does not think FAA will be ready in time. I look forward to hearing from Ms. Garvey on what her agency is doing.

I am also pleased that we have broadened our focus to include the aviation industry overall. One of the most frequently asked questions I get on this issue is whether it will be safe to fly on New Year's day.

Frankly, I don't think anyone in this industry would allow planes to fly if they thought it would not be safe. I believe that the pilots, airlines, air traffic controllers, and the FAA will keep flights grounded unless they are absolutely sure it is safe. I am told the mantra in the airline industry is "When in doubt, ground it." And, as a frequent flyer from Los Angeles to Washington, D.C., I strongly agree with that policy, even if it means I sit on the runway occasionally.

So the question is not whether it will be safe to fly. The question is *whether* the planes will be flying. I want to know what capacity the aviation industry can sustain without its sophisticated computer systems - if portions of the air traffic will have to operate manually. If the aviation industry does not finish fixing and testing all of its mission-critical systems, what percentage of planes will remain grounded? And, for how long? What contingency plans have been developed for manual operations? I know these are difficult questions to answer, but they must be answered.

We will help, in any way we can, to ensure that the aviation industry is prepared for the year 2000. I understand that only executive leadership in the government, in the overall transportation industry, and specifically, in the aviation industry, can provide the necessary organization, management, and leadership to solve the problem before us.

I look forward to the testimony of today's aviation experts to help Congress address this critical issue. I am particularly pleased to welcome the distinguished former Chairman of the Government Reform and Oversight Committee, Bill Clinger. It was under his leadership that we first began our oversight of the Year 2000 issue.

Statement by James L. Oberstar
for
Hearing on Aviation Industry Year 2000 Issues
On
September 29, 1998

I'd like to commend Chairman Shuster for calling this series of hearings on the issue of the Year 2000 (Y2K) problem for the transportation industry.

Whoever thought such a fuss could result from the brilliant idea of a software programmer to show years as two digits to save precious memory on the early computer systems. This programmer probably received a promotion and a raise for saving that company so much money. Yet here we are today to talk about the serious impact this idea is having on the transportation industry. This is a perfect example of the saying "a penny wise and a pound foolish."

The United States has the most effective transportation and distribution system in the world. This transportation system is vital and indispensable to the U.S. economy. As a share of the gross domestic product (GDP), transportation has held at approximately 11% since 1989. The size of the transportation system can be seen in these 1995 statistics:

- Approximately 6 ~~2.5~~ trillion miles were driven by 213 million ~~thousand~~ vehicles on 4 million miles of public roads.
- Some ~~Approximately~~ 530 million passengers were carried by 5500 air carrier aircraft through the air traffic control system, landing and departing at 800 airports. In addition, 180,000 ~~thousand~~ general aviation aircraft used over 5,000 ~~thousand~~ public use airports.
- More than 620 thousand rail cars operated on over 200 thousand miles of track.
- The U.S. has over 25,000 ~~thousand~~ miles of navigable waterways with 275 locks and 322 miles of ferry service.

Today we are focusing on the Y2K challenge for the aviation infrastructure. Aviation, out of all the modes of transportation, has probably received the most media coverage of its Y2K problem. This most likely stems from people's general fear about the safety of aviation. More than 40 times as ~~the~~ many ~~number of~~ people die in ground transportation accidents ~~every~~ year as in ~~than in~~ airplane accidents, yet people are generally more afraid of flying. This same fear may also be a benefit to aviation in solving the Y2K problem. This fear has lead the FAA and the industry to really take the Y2K issue seriously and take the necessary actions in order to ensure that it is safe to fly on January 1, 2000.

We need to find the right balance for Y2K. On the one hand, we need to recognize the seriousness of the problem, but in an industry like aviation, we need to avoid panic. This can be achieved. First, we need to recognize that the Y2K problem is not really a technical problem, simple solutions do exist. Instead, it is a management problem. The biggest challenge is assessing which systems are not Y2K compliant and managing the renovation, testing and implementation of those systems in the short time we have left. Second, we need to accept the fact that we can never be sure we've completely fixed everything and have the appropriate contingency plans in place for some type of failure on January 1, 2000.

Managing the renovation of the aviation infrastructure requires a wide range of people and organizations to work together. The aviation infrastructure is an extremely complex and fully integrated system. In order to maintain a safe and efficient air transportation system in 2000, we must ensure that all parts of the industry are prepared and Y2K compliant. This includes: the FAA Air Traffic Control System, the airlines, the airports, the aircraft manufacturers and other suppliers, the repair stations, the international community, the computer reservation systems, the travel agencies, and the power and telecommunication networks. Problems in any of these areas on January 1, 2000 could impact air travel throughout the world. I believe this process is well underway and many of the witnesses will testify to this fact today. For example, thanks to the hard work and leadership of Jane Garvey and Ray Long, the FAA will have 99% of its systems renovated by tomorrow, September 30, 1998. This was the date established by OMB for all renovation activities. ATA is also working with the major airlines and airports to develop adequate Y2K plans.

For aviation, contingency plans are nothing new. The entire system is built on layers and layers of back-up plans. Most critical air traffic control systems are redundant. Every pilot knows at which alternate airport to land in the case they are unable to land at their intended airport and the aircraft is carrying enough fuel for that situation. Every air traffic controller knows that if the radar scope fails, they can control the plane using voice communications and pre-established procedures.

Yet these contingency plans are not enough. Additional contingency plans need to be developed for catastrophic failures. The FAA may know what to do when power fails at one ARTCC, but what about 6 contiguous ARTCCs? It will also be important for people to review all contingency plans and be prepared to execute any of them. The issue of additional Y2K contingency plan training for air traffic controllers, maintenance staff, pilots and other aviation employees needs to be addressed.

I look forward to hearing from the witnesses today to learn more about the status of their Y2K plans. This is an important issue for aviation with an immovable deadline.

Opening Statement of Congressman William O. Lipinski
Committee on Transportation and Infrastructure
Hearing on "Y2K: Will We Get There on Time?"
With a Focus on Aviation Compliance
September 29, 1998

Thank you, Mr. Chairman, for holding this important series of hearings on the Year 2000 computer problem and the response of our nation's transportation industry. I also want to thank the House Task Force on the Year 2000 problem for all the hard work and attention they have devoted to this issue.

Our nation's economy depends on transportation for the movement of people and goods. Transportation increasingly depends on computers to keep moving. Aviation and the air traffic control system are particularly dependent on computers and computer-based systems.

I look forward to learning today about what the Federal Aviation Administration and the aviation industry have already done to addresses the Year 2000 problem and what more needs to be done to be ready for the new millennium. We must make sure that the entire aviation industry is ready to fly smoothly into the 21st Century.

Thank you, Mr. Chairman. I look forward to hearing from our witnesses here today and I yield back the balance of my time.

Opening Statement of
Constance A. Morella
Chairwoman, Subcommittee on Technology
[House Committee on Science]

Aviation and the Year 2000

Joint Hearing with The House Committee on Transportation and Infrastructure
and the House Committee on Government Reform

September 29, 1998

Good morning. I am pleased to be part of this important hearing today dealing with the projected impact of the Year 2000 computer problem as it relates to aviation.

This is eleventh in a series of hearings the Technology Subcommittee has held on the Y2K problem and I am pleased to work jointly for the first-time with the Committee on Transportation and Infrastructure.

I wish to thank Chairman Shuster and Ranking Member Oberstar, as well Aviation Subcommittee Chairman Duncan and Ranking Member Lipiniski, for their cooperation and leadership on this critical issue.

Today's hearing will focus on the efforts of the Federal Aviation Administration, the National Oceanic and Atmospheric Administration, and the aviation industry to address the effects of Y2K and its impact on aviation.

In past hearings, we have focused our efforts on the mission critical components of the FAA's air traffic control system.

While I still harbor some concerns about the FAA's ability to be fully Y2K compliant before January 1, 2000, I am pleased with the significant progress the agency has made since our initial hearing in February of this year.

Administrator Garvey and her Y2K team have made great strides, but the real challenge is to catch-up to the OMB milestone for March 1999 so that enough time is left to conduct the costly and time-consuming critical "end-to-end" testing of the entire aviation system.

As Co-chair of the House Y2K Task Force, I am often asked whether aircraft will fly and fly safely on that fateful eve as our clocks change from 1999 to the year 2000.

As I have said, time and time again, I view this problem as a "capacity" issue, not a "safety" issue.

I know that the FAA and the aviation industry will not take any chances that could, in any way, jeopardize aviation safety. However, I believe there is a real possible that Y2K will cause some disruption to air service.

At this time, I am convinced that it is practical for the FAA and aviation industry to work proactively with all aviation stakeholders to develop contingency plans in the event that they are needed to ensure that certain flights continue and the transportation of people, goods and services are not significantly impaired.

While the FAA has made significant progress mitigating the effects of Y2K on its own systems, several issues still need to be addressed as a result of the hundreds, if not thousands, of interdependent data-exchange interfaces that support aviation operations.

Every component that supports aviation - from navigation to ground-based maintenance and fueling operations - must demonstrate its ability to work together flawlessly with other aviation components to ensure a seamless transition to the Year 2000 and beyond.

I am pleased that we have with us today a very distinguished panel to help us review these issues and I wish to thank them for their recognition of this problem and their willingness to share their Y2K views and strategies.

The fact that three Congressional committees are participating in this hearing underscores the importance of the aviation industry to our nation's economy and welfare.

This hearing is an excellent example of Congress working proactively with Federal agencies and the industry to overcome a common problem, and I look forward to continuing to move collaboratively to expedite the necessary Y2K fixes in the aviation industry.

Thank you.

JERRY F. COSTELLO
12TH DISTRICT, ILLINOIS

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STATEMENT OF U.S. REPRESENTATIVE JERRY F. COSTELLO (D-IL)

TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

HEARING ON Y2K

September 29, 1998

Mr. Chairman, thank you for calling this hearing. I am pleased that this committee is committed to making sure that our transition to the next millennium is as smooth and safe as possible. This hearing is the first in a very important series on the Y2K computer problems. With little over a year until the next millennium, this status report is none too soon. It is critical that we evaluate our transportation systems in relation to Y2K and move expeditiously to correct any potential problems.

I would like to welcome Administrator Garvey and our panel of witnesses. The aviation industry is especially dependent on computers and more than any other transportation industry, I believe, the public can conceptualize what would happen if the air traffic control system experienced a computer meltdown at the turn of the century. They are rightly concerned. I understand that the FAA has made great strides in their Y2K efforts. I am pleased by these results and I look forward to hearing a full status report. I am also very interested in learning about the coordination within the airline industry. The airline industry is critically interdependent and all systems and all players must be able to adequately rely on one another.

Mr. Chairman, I look forward to a very insightful and informative hearing. Again, I would like to thank you and Ranking Member Lipinski for your leadership on this issue and in

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this subcommittee.

Mr. HORN. We have held 20 hearings since we held the first one on this subject with the Subcommittee on Government Management, Information, and Technology. We have gone to the field recently in the six major cities in America to look at what is going on at the grassroots.

About a year and a half ago, Mrs. Morella and I, with our ranking Democrats, urged the President to do two things. One, appoint somebody that can coordinate this effort for the executive branch. That has been done with Mr. Koskinen and the year 2000 panel that he has put together. We also urged him to use the bully pulpit and inform the American citizens and reassure them. We have done that in writing, we have done it personally. He did make one address on this subject. That is before the National Academy of Sciences. I might say that's preaching to the choir. They know all about it.

We need the President and top officials in the executive branch to go around the country and explain and to end any fears that are going to be constantly popping up in some of the media that like to alarm people. We need to have sufficient progress, which is what we are looking for today with the Federal Aviation Administration, among others.

I applaud Chairman Shuster and now Chairman Duncan, acting chairman, for doing this on transportation as a whole. I think it is tremendously important. We should note that the General Accounting Office, which is our investigative arm, does not think the Federal Aviation Administration will be ready on time. So we need to be reassured one way or the other by the very able administrator of that agency.

The question has been raised, would we feel safe to fly on New Years Day? The answer is yes, because we assume FAA and the airlines would have that rule that when in doubt, you ground it. We are all for that. The question is, how far along are we in the conversion of the various computers that relate to moving a plane from one part of the country, one part of the world to the other. So we will be pursuing those questions. Again, we would urge leadership in the executive branch and in the companies around the United States and the industries there, also leadership. That is the only thing that is going to get this job done. I thank you, Mr. Chairman.

Mr. DUNCAN. Thank you very much, Chairman Horn. I must just say since you mentioned it that this is the 1st day of 4 days of hearings on the Y2K problem that tie into transportation. We are always honored to have the ranking member of the full committee, Mr. Oberstar, with us. He will be involved in all 4 days of these hearings. But we have referred to him many, many times on this committee as Mr. Aviation, because he is certainly an expert in that area and was formerly chairman of the Aviation Subcommittee. So I'll turn to Mr. Oberstar for any statement he wishes to make at this time.

Mr. OBERSTAR. Thank you very much, Mr. Chairman, for your very kind remarks. I do join others in paying tribute to Chairman Shuster for calling these hearings. As a computer specialist himself with a Ph.D. in the field, he certainly understands the seriousness of the issue and the importance of directing committee attention to this matter at any early date, as we have done.

I thank you for your splendid leadership, the diligence in the field of aviation and welcome long-time dear and wonderful friend, Chairman Clinger. It is nice to be able to refer to you in those terms. Welcome to this committee hearing and to this room where you and I spent more time I think with each other at various points in our career than we did with our spouses, constructively and productively.

I will abbreviate my remarks by saying that the Y2K problem literally scared the daylights out of people when it first exploded upon the scene, not just Government, private sector. There was a story in the National Journal earlier this year reporting on the industry problems. "This is an industry that produces a lot of crummy software" said Bruce Webster, chief technology officer of Dallas-based Object Systems Group. He went on and the story goes on to describe the problems industry is having.

It isn't a Government, it isn't an industry problem. It is a technology problem. Somewhere back in the dark ages of computer software, about 10 years ago, somebody decided that, it was actually longer than that, about the time actually my wife Jean was a programmer for the first NASA moon launch, working in a computer programming project with industry and Government people, astronauts all gathered. They were saying we don't have enough capacity in memory to have all these numbers. How can we abbreviate these numbers. Somebody came up with just using the last two digits of the century. All of a sudden we have a problem.

What sounded like a really good solution, a brilliant solution, saved companies lots of money and accommodated the reality that we didn't have computer capacity, memory capacity to hold all the data, it sounded like a good idea then. Today the problem is that small systems in very big computers like the 9020 for the host system in air traffic control, governing end route flights, 23 million a year, reads the wrong number in the year 2000, and doesn't tell the cooling system to turn on and the computer system overheats and shuts down. That is the fear. Small little things like that.

To her great credit, Administrator Jane Garvey seized the problem immediately, appointed a Y2K czar, Ray Long, and said get going, this is our highest priority, fix it. By tomorrow, September 30th, FAA will have 99 percent of its systems renovated. What started out as a really huge problem, when analyzed, came down to 280 total air traffic systems of which 224 are mission-critical, of which 84 needed repair, and by the spring of this year, 41 percent of those had already been addressed. The rest will be completed by tomorrow. That is an extraordinary record.

There is a lot more to be done, much more to be accomplished to be sure that we haven't overlooked some little number, some little date, some software programming. But the fact is that everybody is aware of the problem. It's not one that is being overlooked and isn't one that's being swept under the rug. It is one that is being addressed by the best minds in industry and in Government. With the project we are going to hear about from Chairman Clinger, I know we'll learn a good deal more.

These issues of capacity now are largely behind us. We have today so much capacity we don't know what to do with it in computer systems. In fact, we are being flooded with information, the so-called paperless age is inundating us with paper. It's a good thing for the companies in my district, but not good for people who have to read all that extra paper.

The fact is that we are on top of this issue. The sky is not falling. Chicken Little is wrong. We are on the right track. Today's hearing and the three to follow will give us the path toward understanding where we are, where we're headed, and how to avoid such problems in the future.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you, Mr. Oberstar. The three hearings that will be held on this problem in this committee are on October 2, with railroads and transit, on October 6, with public buildings and highways and pipelines, and October 7, on water transportation and Coast Guard issues.

As I mentioned in my opening statement, probably the 2 Members out of all 435 of us who have spent the most time on this issue are Congressman Horn, who has held hearings all over the country, and our good friend Congresswoman Connie Morella, who Chairs the appropriate subcommittee on the Science Committee. I would like to call on Congresswoman Morella to give her statement at this time.

Mrs. MORELLA. Thanks very much, Mr. Chairman. I am very pleased to be part of this important hearing dealing with the projected impact of the year 2000 computer problem as it relates to aviation. This is the 11th in a series of hearings that the Technology Subcommittee has held on the Y2K problem. I am pleased to work jointly for the first time with the Committee on Transportation and Infrastructure. I commend you on the series of hearings that you are going to be holding on Y2K.

I want to thank Chairman Shuster, Ranking Member Oberstar, and indeed Aviation Subcommittee Chairman Mr. Duncan, and Ranking Member Lipinski, for their cooperation and leadership on this critical issue.

Today's hearing will focus on the efforts of the Federal Aviation Administration, the National Oceanic and Atmospheric Administration, and the aviation industry to address the effects of Y2K and its impact on aviation. In past hearings, we have focused our efforts on the mission-critical components of FAA's air traffic control system. While I still harbor some concerns about the FAA's ability to be fully Y2K compliant before January 1, 2000, I am really pleased with the significant progress that the agency has made since our initial hearing in February this year. Administrator Garvey and her Y2K team have made great strides.

But the real challenge is to catch up to the OMB milestone for March 1999 so that enough time is left to conduct the costly and time-consuming end-to-end testing of the entire aviation system. As co-chair with Congressman Horn of the House Y2K Task Force, I am often asked whether aircraft will fly and fly safely on that fateful eve as our clocks change from 1999 to the year 2000. As I have said time and time again, I view this problem as a capacity issue and not a safety issue.

I know that the FAA and the aviation industry will not take any chances that could in any way jeopardize aviation safety. However, I believe that there is a real possibility that Y2K will cause some disruption of air service. At this time, I am convinced that it is practical for the FAA and aviation industry to work proactively with all aviation stakeholders to develop contingency plans in the event that they are needed to ensure that certain flights continue and the transportation of people, goods and services are not significantly impacted.

While the FAA has made significant progress mitigating the effects of Y2K on its own systems, several issues still need to be addressed as a result of the hundreds, if not thousands of interdependent data exchange interfaces that support aviation operations. Every component that supports aviation, from navigation to ground-based maintenance and fueling operations, must demonstrate its ability to work together flawlessly with other aviation components to ensure that seamless transition to the year 2000 and beyond.

I am pleased that we have here today, Mr. Chairman, a very distinguished panel to help us review these issues. I want to thank them for their recognition of this problem and their willingness to share their Y2K views and the strategies. The fact that three congressional committees are participating in this hearing underscores the importance of the aviation industry to our Nation's economy and welfare. This hearing is an excellent example of Congress working proactively with Federal agencies and the industry to overcome a common problem. I look forward to continuing to move collaboratively to expedite the necessary Y2K fixes in the aviation industry.

I am pleased that our first guest who will testify has been very patient and is a very dear friend. It's good to see Congressman Clinger here. Thank you very much, Mr. Chairman.

Mr. DUNCAN. Thank you very much, Mrs. Morella. For some reason, perhaps because it is not a very precise science, politics does not attract many people with a scientific or technical background. So we need a lot of help on issues like this. We are very fortunate to have an outstanding scientist, a former college physics professor in Dr. Vern Ehlers. I would like to call on Dr. Ehlers at this time.

Mr. EHLERS. Thank you, Mr. Chairman. I will be brief. We have kept our witnesses waiting long enough.

When Administrator Garvey appeared before us for the first time, I commented to her that no matter what her job assignments, no matter how important issues were that came to her desk, she should plan on spending one-third of her time on the Y2K problem. We chatted briefly before the panel this morning. She informed me that she in fact remembered the statement, but also had spent at least that much time over the past year. That is rather comforting.

I think there are going to be more problems than we expect in the FAA. There are going to be some surprises. But I do not envision planes falling from the sky or any of the other disaster scenarios that people have suggested. What we may find is that there are some planes that are not flying. Ironically, it may be some of the newer ones which have the greater computerization.

But my concern at this point is shifting from the FAA to concerns about the airlines operations, the internal computers on the airplanes, the ground issues that Congresswoman Morella mentioned. You may be able to get to your destination on January 1, 2000, but your luggage might not make it if the baggage system has not been made Y2K compliant. We tend to forget the mundane in worrying about the safety issues. But the entire air transportation system is incredibly computer-dependent because it developed so much later than other transportation systems and is so totally dependent on computers, that I think we have to be concerned about every nook and cranny of the system and not just the FAA.

Thank you very much.

Mr. DUNCAN. Thank you very much. We have our friend Tom Davis, who serves on both this committee and the Government Reform and Oversight Committee. Mr. Davis.

Mr. DAVIS OF VIRGINIA. I'll just be very brief. We have talked this to death in other hearings, but I think particularly when you start talking about air traffic and the like, it is not just getting your systems, it is all the systems that you are talking to back and forth, not just in this country, but across the world. So you need plenty of time for testing these back and forth. We have got a great expert panel today and I'll have a further statement included in the record. Thank you.

Mr. DUNCAN. Thank you very much, Mr. Davis.

Our first witness is one of the finest men ever to serve in the Congress, the Honorable William F. Clinger, Jr., former chairman of the House Committee on Government Reform and Oversight.

Congressman Clinger, would you please stand and raise your right hand and be sworn?

[Witness sworn.]

Mr. DUNCAN. You may begin your testimony.

TESTIMONY OF THE HON. WILLIAM F. CLINGER, JR., FORMER CHAIRMAN, HOUSE COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

Mr. CLINGER. Thank you very, very much, Mr. Chairman. I want to thank the entire panel for inviting me to appear before this august group, this ad hoc committee, and also to commend all of you for the fact that it is an ad hoc committee. I think there is a recognition here that this is a problem that obviously crosses jurisdictional bounds, and there is a need for this to be addressed as a common problem for the Congress. So the fact that you have come together in this ad hoc committee I think is terribly, terribly important.

I know the work that is being done in this area. I know how many hearings we had. I am particularly aware of Congressman Horn because that was the subcommittee under my former chairmanship. I know the many hours that he has dedicated to this problem, and to draw attention to the fact that this is something that we cannot afford to let go. We have got to move on it and we have got to be ready on the 1st of January 2000.

I must say, Mr. Chairman, I feel very comfortable in this room. This is a room in which I spent my entire congressional career as a member of the Public Works and Transportation Committee, later the Transportation and Infrastructure Committee. As Mr. Oberstar knows, we spent hours, days, years dealing with the issues of the aviation industry. So I am delighted to be back with him and with all of you.

I must say that whereas I feel very comfortable here and feel very much among friends, I have some trepidation being on this side of the panel because the last time I appeared as a witness before the then Public Works and Transportation Committee, I was serving as chief counsel for the Economic Development Administration under the Ford administration. I spent about 45 minutes getting beat up on by Bella Abzug, who challenged the fact that the Ford administration was going to cut the EDA budget. She was not happy with that. So I came out of my last hearing as a witness very bloodied by Ms. Abzug.

But I am here today as a private citizen and as a board member of a newly created entity called the Aviation Safety Alliance, which was an organization really organized by the aviation industry through its trade association. It is a non-profit group consisting of aviation professionals and unaffiliated but hopefully a knowledgeable individual such as myself.

The alliance is really dedicated to advancing aviation safety and public awareness of safety issues to produce hopefully a stronger and safer aviation system, something I know is paramount with this committee and with your ad hoc committee. Clearly of the many, many critical and crucial issues before the industry and therefore before the American traveling public, none, not one has more far-reaching implications than those associated with the year 2000 problem.

Recognizing the very critical nature of the Y2K problem, as well as the inter-dependency, and I think this is something that this group makes the point, there is a tremendous inter-dependency and commonality among airlines, Government agencies, airports, suppliers, and affiliated aviation organizations. The aviation industry established a collaborative program for assessing preparedness, completing necessary remediation, and ensuring that the industry will be Y2K compliant and safety operational by the year 2000.

There is no question, and the point has been made here this morning, that much remains to be done. But I am pleased to have this opportunity to appear here to applaud the aviation industry's significant progress and success. There have been many successes thus far in moving toward that goal. That success in no small part as again has been referenced here this morning, is the result of the outstanding leadership that Administrator Garvey has brought to the FAA's Y2K program. Under her direction and with a commitment to open and honest communication, the FAA has accelerated from the rather woeful reports that you were hearing in this committee sometime back, the FAA has accelerated its testing and remediation programs and made truly remarkable progress in moving hundreds of mission-critical systems toward Y2K compliance.

Among these systems, the host computer, which supports control or displays at the Nation's 20 en route centers, underwent exhaustive Y2K testing, and will be fully functional on January 1, 2000. Current estimates suggest that the FAA will indeed, as has been mentioned, reach their goal of 99 percent compliance by September

1999. Equally admirable I think is the success of the airline industry's Y2K program in working with suppliers, airports, critical Government agencies to identify and when necessary, encourage appropriate solutions.

In 1997, the airline's trade association, the Air Transport Association, established a dedicated Y2K program. The purpose of this program was to support a comprehensive method to ensure air travelers and shippers that their access to air transportation will be safely maintained through all of the important Y2K deadlines. Indeed, the president of ATA, Carol Hallett, is going to be before this body in a later panel to discuss the industry's approach to this effort.

I understand and know that there have been real problems in many sectors of our industrial complex in this country and that have not made significant progress in this area. But I think that thankfully, however, the safety of our transport system is going to be ensured under the leadership of the dedicated aviation professionals in Government and the private sector. I believe very vehemently that air travel will fly safely through 1999, through the year 2000, and beyond. Indeed, commercial aviation can be held up as an exemplar I think of how Y2K problems should be addressed.

I just want to take this opportunity, Mr. Chairman, I know my time is expiring here, to emphasize the importance that information sharing, cooperation and communication have played in helping the aviation industry approach their Y2K compliance goal. While the individual accomplishments of the airlines, Government agencies, and airports, suppliers, and affiliated organizations are themselves remarkable, the collaborative efforts of these organizations, working cooperatively and not competitively and not in any sense adversarily has enabled them to pool their resources and overcome incredible obstacles in unified pursuit of the goal that once seemed unattainable.

There are challenges ahead, but the progress of the last 6 months has really demonstrated I think the aviation industry's continued commitment to safety and dedication to excellence. As we chart our course for the next millennium, I feel confident that we will continue to provide the safest and most reliable system of transportation in the world.

I thank you, Mr. Chairman, for your indulgence and allowing me to complete that statement.

Mr. DUNCAN. Well, thank you very much, Chairman Clinger. We are going to make sure that you don't leave here today bloodied. Ordinarily we do not on our subcommittee ask questions of Members because we have other chances to visit with each other and also so we can get onto other panels. But I know that Mr. Oberstar told me that for 14 years on three different subcommittees he served as chairman and you served as his ranking member. He told me that he does not think that you ever had a disagreement or a cross word between you.

I would like to turn to Mr. Oberstar at this point for any comments or questions that he might have.

Mr. OBERSTAR. Thank you very much, Mr. Chairman. Yes, indeed, we as I said spent times working so intensively, we spent more time with each other than we did with our families. I do recall that hearing with Bella Abzug. In fact my hearing is just a little—I used to sit next to her on this subcommittee. My hearing is a little deteriorated in my left ear. [Laughter.]

Mr. CLINGER. If I may, Mr. Oberstar, when I left the hearing, my deputy left ahead—I left ahead of my deputy and he followed me out. I said, "Well, how did you know where I went?" He said, "I just followed the trail of blood." [Laughter.]

Mr. OBERSTAR. Well, as you know in Congress we worked together to make EDA a better and more responsive program. The committee has again reported out the EDA reauthorization bill that you and I crafted, along with Don Clausen back in the 1970's.

Mr. CLINGER. Maybe one day we'll get it through.

Mr. OBERSTAR. Some day it will get enacted.

As we are making progress on all the aviation issues that you and I together worked on, you said two words, collaborative efforts. But it has appeared to me throughout the Y2K issue in aviation, is that it is not so much a problem of hardware or software as it is of management, of bringing together the people to manage the issue. I know IBM called out of retirement two now 70 or 72 year old computer programmers who were the only ones who understood the code because they wrote it, and brought them back into work to scratch their heads and collaborate with each other and with others and to work out solutions.

As FAA has found, bringing together people to work, put aside differences, concerns, pride of authorship, they have been able to address these problems aggressively, and for the future, learn lessons about how to manage our vast dependence on these complex systems. There is none more complex as you know, than aviation. Far more complex than the space program. Manned space flight, in comparison requires a handful of people and computers to aviation. So I wish you continued success and endeavor in this arena and to share with us the lessons that you have learned in the process of examining this whole issue.

Mr. CLINGER. I think you make an interesting point too. In a way, it is fortunate that the issue is being brought to a head as soon as it is because some of the expertise that you have mentioned, the people who set this thing up, is being lost as they are retiring or dying or moving on. So we were able to call back people who have an institutional memory of what went on. Their expertise and aid in helping to address the problem might be lost if this thing were going to happen 10 years from now, for example.

Mr. OBERSTAR. Just one final thought. As you have looked at the problem to where we are and probably taken the opportunity to evaluate software being programmed for the future for the replacement for host, the DSR, for Stars, for other components of the air traffic control system, do you see any repeat of the problems of the past?

Mr. CLINGER. Hopefully we have learned from our mistakes. I mean I think that there's no question that there is an awareness that we need to be absolutely sure that there is going to be a cohesion within these systems, that they are really going to be able to work together and work in a cooperative way. I really think there is an awareness on the part of the people who are addressing this problem that we can't afford to—we have got to learn from our mistakes and we cannot afford to have a comparable disaster such as we have with the Y2K problem.

Mr. OBERSTAR. Thank you very much for your splendid work and for your ever honest and open approach and high integrity on all these issues.

Mr. CLINGER. Thank you.

Mr. DUNCAN. Chairman Clinger, I know you have been very busy since you left the Congress. We appreciate your taking time out from your schedule to be here with us this morning. Thank you for all you do for us.

Mr. CLINGER. Thank you very much, Mr. Chairman.

Mr. DUNCAN. We'll go ahead now and call up what has been labeled as introduction panel. While they are coming forward, that will be Mr. Bruce Webster and Mr. David Sullivan, we have been joined by Mr. DeFazio. I would like to see if he has any opening statement he wishes to make at this point. He has no opening statement.

So we are pleased to have as our introduction panel two gentlemen who will give us an overview of this entire issue, Mr. Bruce Webster, the chief technology officer of the Object Systems Group.

Mr. DAVIS OF VIRGINIA. Mr. Chairman? Mr. Chairman?

Mr. DUNCAN. Yes. I was going to introduce you in just a minute, Mr. Davis.

And Mr. David E. Sullivan, president and CEO of the ZONAR Corp. I think that Mr. Davis wants to introduce formally Mr. Sullivan, and tell us something about him.

Mr. DAVIS OF VIRGINIA. Thank you very much. In fact, I was asking Chairman Shuster, who just left here, and I said—Chairman Shuster had hired Dr. Sullivan in his previous career, had hired Dave Sullivan to work in the private sector and had talked to me previously about some of Dave's accomplishments. I said, "Well, can I tell him that he is one of the smartest guys you have ever met?" The chairman said, "Tell him he is the smartest guy I ever met." Then he came back and corrected me. He said, "Tom, you better tell him he's the smartest computer guy I ever met because I did meet Edward Teller once, who was a Nobel Prize winner." But he comes with very, very high recommendations.

Dave Sullivan has really helped contribute to the year 2000 problem as a programmer in the 1960's. It is appropriate that his company has come up with a very unique solution to the millennium bug. He came to the Washington area in 1964 as a member of RCA's computer software development team. He was one of the founders of C3, Inc., which has since been renamed Telos, where he served as CEO in the early 1970's. He has more than 35 years of computer software development and management experience. This is real hands on experience. He has a degree in electrical engineering from the Massachusetts Institute of Technology, a master of science in technology management from the University of Maryland. He is a member of the American Society of Information Science, the Institute of Electric and Electronic Engineers, and the Association for Computing Machinery.

He and his wife Maggie own ZONAR Corp., which is a software development company which is based out in Oakton, VA. It was founded in 1981. ZONAR has produced successful products for information retrieval, real estate information management, and most recently, the AccommoDate 2000 solution for the Y2K problem. He came to me early. I know he has recognized the seriousness of the Y2K problem and the potential for his approach to buy time until more permanent fixes can be applied properly. When you are running up against the deadline and you don't know what to do, I think he has some great ideas in terms of what you can do to get you over the hump until you can get a permanent fixed solution, no matter how complex the system.

I would also add that Dave has focused on the year 2000 problem since 1996, when very few of us were aware of it. As a private pilot with instrument and multi-engine ratings, he is particularly concerned with the potential risks to aviation safety. It has often been said that Dave Sullivan is ahead of his time, but I am very confident that he can contribute to the understanding of the options available to us before our time runs out.

Mr. DUNCAN. Thank you very much, Mr. Davis.

That is quite a billing, Mr. Sullivan. We're pleased to have you with us.

I mentioned that Mr. Webster is the chief technology officer for the Object Systems Group. I failed to mention that he is the co-chair of the Washington D.C. Year 2000 Group.

We are pleased to have both of you with us. Mr. Webster, we'll begin with you, please.

I'm sorry. Would both of you please stand and raise your right hands and be sworn?

[Witnesses sworn.]

Mr. DUNCAN. You may proceed.

TESTIMONY OF BRUCE F. WEBSTER, CHIEF TECHNICAL OFFICER, OBJECT SYSTEMS GROUP, AND CO-CHAIR, WASHINGTON D.C. YEAR 2000 GROUP; AND DAVID E. SULLIVAN, PRESIDENT AND CEO, ZONAR CORP.

Mr. WEBSTER. Mr. Chairman, Mr. Horn, Mrs. Morella, Ranking Member Oberstar, other distinguished members of the committee, it is honor to appear before you today representing not just myself, but the 1,500 members of the Washington D.C. Year 2000 Group.

There are many countries in the world today where gasoline costs $2 to $5 a gallon, where great factories run half-shifts, and unemployment has crept into double digits, where intermittent shortages of various consumer goods cause inflation, long lines, and even government-imposed rationing, where the power system suffers rolling brownouts, and the water in some cities is not safe to drink without treatment, where martial law is imposed from time to time in certain areas to help calm domestic unrest. Now imagine that this is the United States 16 months from now.

The year 2000 crisis is distinct from any challenge that humanity faced to date. We have spent the past 50 years constructing a complex planet-wide network, technical, informational, economic, logistical, social, and even political, that none of us can completely comprehend or control. It has served us well, especially here in the United States where its benefits have given us a strong economy. But we have planted and left unchecked in it the seeds of disruption. These flaws may cause a million unpredictable overlapping errors big and small, disturbing the flow of information and affecting that which it creates and moves, energy, water, food, freight, raw and processed materials, people, money, and more information.

Let us be clear, the Y2K problem will not bring destruction and death as a hurricane or a war. Let me state parenthetically I know of no credible Y2K analyst who has ever suggested that planes would fall out of the sky either. Nor will it in my opinion bring our civilization to a halt, ushering in a post-apocalyptic world like that found in science fiction or some survivalist literature. But that does not mean it won't be painful or serious.

It will be more than a bump in the road ahead or a brief hiccup in a long economic boom. We must be careful not to reject all serious consequences because we reject the most severe and improbable. Wishful disbelief and blind optimism won't shield us from the very real and likely consequences of Y2K. Indeed, it could make them worse.

The Cutter Consortium was asked by the International Finance Corp. earlier this year to assess a specific list of global economic sectors for potential impact by Y2K. They determined the following to be vulnerable: Financial services, utility and power industries, telecommunications, manufacturing, industrial and consumer services, social services, including healthcare and education, food and agribusiness, chemicals and petrochemicals, and hotels and tourism. The consortium also singled out transportation as being vulnerable, even though they had not been asked specifically to evaluate it.

In addition, they identified several smaller sectors tied to those above and so also at risk, including mining, cement and construction, textile, timber, pulp, paper, motor vehicles and parts, oil refining, fertilizers and agricultural chemicals. Such sectors face Y2K disruptions in multiple ways and on different levels. First are Y2K problems in corporate information systems that support accounting, administration, operations, business processes, workflow and external communications. Next are potential Y2K problems in the physical facilities, buildings, equipment, plants, vehicles, including planes and ships, sensors and so on.

Legal issues impact not just sharing of information, but actual operations. Some firms and organizations may scale back or shut down operations for a short period around the Y2K crossover to reduce liability. Beyond that are Y2K problems in the infrastructure upon which these firms depend, telecom, utilities, external facilities and services, not to mention timely delivery of raw materials, processed goods, equipment and supplies. Finally, even if a given firm or sector is itself in good shape, it may still be impacted by Y2K problems among suppliers, partners, customers, and Government agencies.

When you consider the range of sectors vulnerable to Y2K, the various ways and levels in which they can be affected, and the complex global and interrelated nature of many of these sectors, you begin to grasp why there are such concerns about the year 2000 problem. While it is good to remember that duration of most such disruptions will be measured in days or possibly weeks, we need also to remember that it only took a few weeks of work stoppage at one supplier of one key part to cause General Motors to shut down its entire North American manufacturing system, lay off for a while 200,000 workers, lose $1 to $2 billion, and all by itself impact the U.S. economy.

With Y2K, we may face dozens of simultaneous scenarios like that all interacting and intensifying one another. Add in possible disruptions of transportation, infrastructure and social services, and place it all on top of the weakened global economy. We may face profound economic and social consequences. Because of that, the year 2000 problem must be for the next 16 months the most pressing issue for Congress and the administration.

I would be happy to answer any questions you or the committee might have.

Mr. DUNCAN. Thank you very much, Mr. Webster.

Mr. Sullivan.

Mr. SULLIVAN. Mr. Chairman and distinguished members of the committee, thank you for giving me the opportunity to address you today. At the outset, I must admit I am one of the programmers who contributed to this year 2000 problem back in the 1960's. But I am also the inventor of a solution which offers hope for the future.

I wrote my first computer program in 1962 as a student at MIT. Because memory was limited and expensive, I used only two digits to express the year. The computer industry has changed enormously in the 36 years since then. Computer hardware has become cheaper and more powerful, and the software programs that make it work have grown larger and more complex. As a result, computer programs are now amongst the most complicated things ever built by man.

Computer programs are never perfect, but they are at their worst when they are new. It was a brand new state of the art baggage handling program, for example, that shut down the Denver Airport in 1995, and the new Hong Kong Airport more recently. As problems are discovered, almost always by experiencing failures, they are corrected. Since software does not wear out, programs literally improve with age.

As a world leader in information technology, the United States has the largest collection of old, reliable, experienced and well-tested programs. Their only problem is handling years after 1999. We are now working to fix the year's inventory of computer programs before they begin to fail because of Y2K. Hundreds of billions of lines of old reliable code will be changed into new improved and untested code.

Industry experience shows that hundreds of millions of errors will be made in this process. Not all of these errors will be repaired before these programs must be put in service. There is neither the time nor the technology to eliminate these errors through testing. The year 2000 problem is unique. The deadline cannot be slipped, and we have no fallback. When Denver and Hong Kong had problems with their new airport baggage handling system, they were able to use the old airports until they straightened them out. In the year 2000, the old programs won't be available when the new programs have problems. We really need a year 2000 solution that will let us keep running those old reliable experienced and well-tested programs for a little longer. Fortunately such a solution is available by looking at the problem in a different way.

The programs aren't broken. The problem is with the data. Rather than changing programs to handle future years, we can change the years instead. By changing computer years to ones they were designed to handle, like the 1960's, 1970's, and 1980's, we can postpone year 2000 until our computers are ready to handle it. This approach may be unconventional and temporary, but it works. It even works when the program source code is missing or is obsolete. We have shown that we can use well-tested programs without modification merely by changing the year. By using the older calendar, we no longer have to worry about Y2K.

We used a method just like this during the gasoline shortage of 1973. Prices rose over $1, but gas pumps couldn't go above 99 cents per gallon. Did we stop selling gas until we could rebuild millions of gas pumps to handle the higher price? No. Instead we set the price per gallon to half the real price. We filled our tanks normally, then paid double the amount on the pump. By changing the data, the price per gallon, we got through the crisis and were able to replace the pumps as new ones became available.

Organizations around the world have already used this time shift approach to protect computers against the Y2K problem. The Department of Treasury used our AccomoDate 2000 product to protect an application against Y2K in record time and without requiring programming changes in its pilot test last fall. The time shift solution is not complicated or expensive. Typical Y2K projects using this approach are completed in a fraction of the time and cost of changing the programs.

So why isn't everyone using it? Because it's not the conventional way of fixing computer programs. If this were any other situation, we could afford to wait and let society get used to this idea. But these are not ordinary times. Many of my colleagues are concerned that we cannot achieve reliable solutions to this problem in the remaining time. We fear that optimism that characterizes new software projects will mask the ongoing erosion of our complex information systems infrastructure. We are worried that even a very small number of failures when they occur at the same time may trigger nationwide or worldwide chain reactions. A policy that merely seeks to do the best with what we have is not adequate. We must establish a minimum level of reliable systems operation as our goal. This must include all of the systems, Government and non-government, foreign and domestic, upon which we depend. We must then use our maximum energies and ingenuity to achieve it.

The time to apply pragmatic solutions to assure continued operation of our computer software infrastructure is long overdue for the year 2000 problem. I thank you again for giving me this opportunity, and will be happy to answer any questions the committee may have.

Mr. DUNCAN. Thank you very much, Mr. Sullivan. I am going to go first to Congresswoman Morella for questions that she might have.

Mrs. MORELLA. Mr. Sullivan, I am fascinated by your background and by the program that you are offering. I just wonder if Grace

Hopper, where she is, is probably looking down saying either "Right on" or "We have got to try again."

I would like to ask Mr. Webster what he thinks of Mr. Sullivan's approach.

Mr. WEBSTER. Based on a 5 minute discussion, I don't have a basis to analyze it. On the other hand, there have been a number of solutions, such as this proposed for Y2K. They are necessary but not sufficient. That is, they can be used in specific circumstances, usually as a temporary stopgap measure. They do nothing to address the embedded systems problem, and there are often internal calculations or issues that such efforts likewise do not address.

Mrs. MORELLA. That is something I would like to ask you, Mr. Sullivan, what about the embedded chips problem? One you just don't address?

Mr. SULLIVAN. I think what we found is that this particular approach does the least damage. I think our philosophy has been as older programmers, and I think perhaps Grace Hopper and other programmers of my era, Ed Jordan, are the ones that are concerned because I think we understand the realities of some of that code and what it really looks like inside.

So that if can first do no harm, that is, if we can find a way to have these programs continue to operate without change, from our perspective it makes sense to do that to encapsulate them and let them continue to run.

Perhaps 35 to 80 percent of program modules are amenable to this approach, so that while it doesn't handle 100 percent of the cases, it can reduce the scope of the effort required, at least in the next 18 months, to a fraction of what it is currently.

This can also work in some cases for embedded systems. I think the FAA has already announced that it's been rescued in its old air traffic control computers because essentially the date subtracts 75 from the year. That is, the year inside those computers is zero for 75 and one for 76 and so on. So in fact, that technique has already been used in the past.

So I would suggest only that this be used where it can be and that the benefits of being able to protect systems without any other activity and without doing it harm, without destabilizing them, reduce the scope of the effort for the remaining programs.

Mrs. MORELLA. Does that system require a testing period too?

Mr. SULLIVAN. Absolutely. In fact, I think that the key difference is that if you can protect the system, if you start out saying that the system is a black box that performs a certain function, if we are able to continue to provide that function based on, for example, 1972 instead of 2000, and then we can test that as we would had we tested a remediated system and if it passes a test, then we have achieved our objective, which is, we protected it and we can continue to operate.

So our approach basically is to do as little as is necessary to create a system we believe will work, and then test it as thoroughly as we can. The testing that we would subject our systems to is the same as would be subjected, tested for other systems that have been remediated. The difference is that we haven't done anything to insert errors in the process. The current statistics seem to be about 1,500 errors per million lines of code that go through a Y2K project are generated. Of course that creates millions of errors that have to then be debugged back out again.

Mrs. MORELLA. Do we tend to, with your system, do we tend to rely too much on it and take the time away from the permanent solution? Is that a concern?

Mr. SULLIVAN. We are not suggesting that in fact anyone abandon anything that they are doing currently. This approach can be done in parallel and we suggest in fact that it ought to be done as quickly as possible as a contingency approach.

In many cases, there are replacement systems already in the wings. Those are the ones that will be compliant and will provide the ongoing functionality. What we are talking about here is being able to protect the old systems without modification, test them to assure that if they are needed, they can continue to operate beyond the year 2000.

Mrs. MORELLA. When we have subsequent panels I am going to kind of ask them or hope that within their statements they might also comment on your plan.

Just one final question to both of you. There are legislative proposals in Congress which would allow companies to exchange information on the Y2K efforts without liability concerns. I just wondered, do you support these bills?

Mr. WEBSTER. Generally speaking, yes. The fundamental problem I see with them is that given the nature, litigations nature of our business climate, a company will not share information unless it is sure that it is A, safe, and B, beneficial. The legislation seeks to address the safety issue assuming that the law is not somehow overturned or loopholes found. But it does not directly address the beneficial issue. The natural tendency of business, absent an obvious benefit, is often to do nothing, particularly given what they have to focus on to get accomplished.

Mrs. MORELLA. Mr. Sullivan, would you like to comment?

Mr. SULLIVAN. I would agree that—I think the problem is more that we don't have an adequate base of information in some of these cases about old programs, about how they operate. You see a reluctance among many vendors to certify their products as Y2K compliant, merely because they don't know whether or not they are compliant and they have no economic reason to take the heat or the liability for claiming compliance if there is not a new market or they can't sell an upgrade.

So whether it has a practical effect, it's hard to tell, but I think it is certainly a step in the right direction.

Mrs. MORELLA. I know my time has expired, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman.

Mr. Sullivan, I am not particularly literate in this area, but I have asked a number of people intimately involved with computers about your solution over the last year. I mean I just said why couldn't we just set the date back. Like I recently saw a cartoon that showed they finally solved the Y2K problem. It was welcome to 1900. They had people in wagons and that.

But how would this—and I can understand where with an agency like the FAA or with NOAA or people where the data is sort of incidental to the critical operations. I mean air traffic safety happens every day. It doesn't really matter what date it is. I can understand where this would work there, but how could this work in agencies that have to do compound interest calculations, Treasury, or how can it work in Social Security, where your benefits are dependent upon your year of birth. You would have to then build in another correction for computing the year of birth, and say add 28 years to this person's age or something like that. Would you not? I mean it could become fairly complicated in agencies like that.

Mr. SULLIVAN. Yes. The key to this working of course is that all the dates that are computed upon then are changed in the same manner.

We have a benefit in the calendar and the happenstance that year 2000 is a leap year, unlike 1900 or 2100, that allows us to look at the calendar and determine that in fact 1970 is identical in the full calendar to 1998. 1971 is identical to 1999, and 1972 is identical to 2000. So if the programs worked correctly for 1972, the first day of the week, the second Monday, first Tuesday, and so on, then those computations will be correct for 2000. That is not the case for 1900. If they try to compute correctly for 1900, that is the wrong computation for 2000.

So generally people who have applied this technique have started with the idea that they would use a 28 year shift or a multiple of 28 to provide a range of years so they can compute from 1928 to 2027 using 00 to 99 to represent those years, and that the computations by the program would be identical.

Now starting with this basic point, generally again we have 75 to 80 percent of the programs that go ahead and compute based on 1972 instead of what the real year is for 2000, and perform the correct computations. The kind of software we provide and other people have also provided, there are other products that do this, automatically transform the years from 1998 to 1970 as data flows into the programs, and automatically transfers the results back from 1998 back to 00. So yes, that software has to be put in place, but this is additive software, relatively simple, and does not destabilize these old programs that may have missing source code, written in the machine code, as Mr. Shuster indicated some 20 or 30 years ago.

So the key is that if we can continue to use these programs without modification, that limits what we have to retest, that limits the failures we may have to worry about after the fact. Again, I am suggesting this is a very pragmatic approach. It doesn't involve no work. It certainly involves work, but typically about a tenth of the work for major remediation project. It is inherently a much safer, by not again, destabilizing these programs.

I would suggest again, after our test in Treasury, that the programmers who saw that then came forward and said, well, let's try it on this system. This one is a bag of worms. I know this one is terrible. The last time I looked at it, and so on. That the programmers often know how bad some of these systems truly are. So when they are suggesting that in fact this would be an excellent approach to those programs, I think it makes some sense to have management take a look at it.

Mr. DEFAZIO. OK. So basically then we over layer a new program that provides the correction for birthdate and all those other sorts of computations that Social Security would have to make, for instance?

Mr. SULLIVAN. In the case of dates, there's a second problem that's often confused with the Y2K problem. That is because people are living longer, because our information is spanning a longer range, we have a problem just being able to store more than 100 years worth of information. So it's not really a Y2K problem. If someone is born in 1897, that is already a problem now because it's more than 100 years. So that is a two digit year problem.

The Y2K problem is if it were not for this specific year of 99 and 00, we could continue to operate. So those are really separate problems. The Social Security problem and the aging of our information base and our citizenry is something that has to be solved some other way.

Mr. DEFAZIO. I realize that, but I meant just for routine, your routine retirees who are not yet of the triple digit age, but if we go back to 1972, then if the system is saying it's 1972 then that person doesn't become eligible for benefits until 1995. Then you have to build in a correction for that.

Mr. SULLIVAN. Yes. The data would all be shifted. That is, we would essentially re-encode the dates. Instead of 00 meaning 1900, 00 would now mean 1928. So we would have to do that one time in order to have consistent dates for the programs. But once having done that, then they can continue to operate without other modifications.

Mr. DEFAZIO. OK. All right. Thank you. Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you, Mr. DeFazio.

Chairman Horn.

Mr. HORN. Thank you very much, Mr. Chairman.

Gentlemen, I have been impressed by your testimony. Mr. Sullivan, I note that you did work for the Treasury in the Financial Management Service. One of the problems that has concerned us is the fact that the Social Security Administration is, of course, ahead of everybody else. They started in 1989. They are about 93 percent done. They issue checks every month, about 43 million of them, based on their tapes, which are correct. But they don't cut the check. The agency for which you work, the Financial Management Service cuts the check.

Now was there any testing of Social Security tapes with your system and the checks that Financial Management Service would cut as a result? And how did that work?

Mr. SULLIVAN. The specific system that we worked on was called Check Issue Audit, which essentially is a reconciliation program for all of the Department of Treasury, all of the U.S. accounts. It attempts to balance those accounts on a monthly basis going back about 12 years.

Because that was a system that they could actually identify and put their arms around, that was the one that was used for this particular pilot. So this did not actually handle issuing of checks, but rather did the balancing of the accounts subsequently.

Mr. HORN. In other words, these accounts were internal to the Department of the Treasury?

Mr. SULLIVAN. That is correct.

Mr. HORN. They weren't any of their customers that they have on the outside?

Mr. SULLIVAN. That's correct.

Mr. HORN. We graded them down because they couldn't handle the Social Security checks. Do you know any progress that's being made down there? They keep assuring me they will guarantee those checks will be written, but I haven't seen the evidence yet.

Mr. SULLIVAN. No. We have still been relegated to the contingency basically. We still have too much time is the short answer. Generally what we see are people saying well, this doesn't sound like a good way of doing things. We would much prefer to change the programs if we can. So let's take a few more months and see if we can make it. If we can make it in time, then we won't have to use this.

My suggestion again in the testimony was that I think we are at a point where we really need to take the most pragmatic approach. If we can nail down these things and know that they will function after January 1, 2000, I think we should do it in the most expeditious manner possible. But they are still waiting to see if they can make it the hard way.

Mr. HORN. Is your system used by other Government departments at this point?

Mr. SULLIVAN. It is not currently used by other Government departments. We have got proposals and tests going on in a number of agencies, but is not currently in use.

This approach generally has been used by insurance companies, companies in France and England. We looked at Raytheon in their New England facility has used this approach exclusively to do their remediation. So it has been used a number of places, but not typically within the Government.

Mr. HORN. Has the General Services Administration or Mr. Koskinen's Conversion Council ever called on you to see what you can do?

Mr. SULLIVAN. They have not. It has been very difficult getting past the paradigm shift that you don't have to change programs. Just because you can doesn't necessarily make it the best thing to do. So there are a few of us that are still trying to convey this message, but it has not been adopted.

Most of the tools that are now involved in Y2K are tools that were left over from the old days that do program remediation. So it was a natural thing to just rename the tool to 2000 and then sell it as a Y2K tool. But there are very few that were actually developed specifically for this problem. They have a tough way to make it in the marketplace right now.

Mr. HORN. I yield to my colleague here. Do you have a question?

Mrs. MORELLA. I didn't realize I would have another chance to ask. But I was discussing this with staff. I understand that your proposal, Mr. Sullivan, the solution has buffers so that when someone enters data into the computer, the correct date is entered. The buffer changes the date to what year?

Mr. SULLIVAN. To a year typically 28 years earlier than that year. So if they enter 1998, it would change it to 1970.

Mrs. MORELLA. So the computer thinks it is operating in the 1970's?

Mr. SULLIVAN. The data it is operating upon looks like it is data from the 1970's, yes.

Mrs. MORELLA. And any data the computer outputs goes through another buffer to correct the date. Is that right?

Mr. SULLIVAN. Correct.

Mrs. MORELLA. Is this making it kind of a cumbersome situation?

Mr. SULLIVAN. Well, it certainly is adding a level of software or a level of program that didn't exist before. But we are looking at this as a firewall. Among the things that the same layer of software can do is protect those same applications from other types of bad data.

So what we are suggesting is by putting a firewall around these old applications, we can provide them clean and protected data. We protect them from themselves by shifting the date and time, but we can protect them from the outside world by actually confirming that the inputs they get are correct. So this is really a way of protecting these old programs. This approach has been taken as we moved into object technology. I think Mr. Webster can talk about creating objects out of these old Legacy systems. That has been going on for some time. It is the same basic approach.

Mrs. MORELLA. Has ITAA given any approval to the approach?

Mr. SULLIVAN. They have not. They primarily are certifying processes and tools. Again, this is outside the scope of the kinds of things that they have up to this point been able to certify.

Mrs. MORELLA. Have you seen any problem with that, the date September 9, 1999?

Mr. SULLIVAN. I know there is a possibility that there is a problem with that date. I think it is more likely, there is a Julian date that is used in the same manner which is 99999. That is the day portion of the Julian date 9–99, means an infinite expiration date. I think some of this 9–9–99 is a little unlikely. On the other hand, one never knows what a programmer might do. That is the whole point of our approach, is when in doubt if we can create a safe environment and then test it to confirm that it in fact is safe, then that is perhaps better than trying to figure out what some arcane programmer did in his youth.

Mrs. MORELLA. I don't know how anyone could feel that this is not a very kind of exciting provocative issue. Thank you very much. Thank you, Mr. Horn.

Mr. DUNCAN. Thank you. Before I yield to Mr. Kucinich, Mr. Webster, my curiosity is getting the better of me. What do you think about Mr. Sullivan's proposed solution? Both of you have referred to it as temporary, but do you think this problem can be solved that simply?

Mr. WEBSTER. It's not—again, Mr. Sullivan has done well to characterize this as a contingency plan for specific software that is sufficiently independent that this can be used. This approach would break any software that, for example, makes reference to hard coded dates within it, such as if you had a code built in that says ok, if this is after 1965, then do this, if it's before 1965 then do that. Any software that has that kind of code in it, trust me there's plenty like that out there, would break.

Beyond that, it is in essence another form, certain external form of what's called windowing. You are simply shifting 100 year window by a certain amount. The question is if you have programs that have any dates that are going prior to 1928, again, you would have a problem. It could not handle dates such as that. It doesn't address operating systems. It doesn't address a lot of the utilities. It doesn't address again, as I said, embedded systems.

It is a solution I have certainly seen discussed out there before. The clue or the key is to use it as contingency planning, to use it where it can be used, how it can be used, but it ultimately solves no problems. It gets us by, which again, as Mr. Sullivan says, may be what we have to do.

Mr. DUNCAN. What do you say, Mr. Sullivan, to what Mr. Webster just said?

Mr. SULLIVAN. I agree with him entirely, that there are specific things that could be done in programs that make them not amenable to this approach. My only suggestion is that if in fact it works with very little effort and very little risk in 50 percent, 60 percent, 75 percent of the programs, I suggest it's time to start applying it to those percentages. I think it would be reasonable to ask someone why they haven't applied this or haven't looked at applying it.

I think everyone has a perception that they looked at this a year ago or 2 years ago, they had discussions about it. I have seen on the Y2K Internet discussion groups someone saying my boss just asked me about this technique. Now why won't it work again? People are asking why it won't work. I think they should really ask if it will work and if it works and it can be effective and save costs and time and risk, why aren't we using it.

Mr. DUNCAN. I have some other questions, but I am going to go to Mr. Kucinich.

Mr. KUCINICH. Thank you very much, Mr. Chairman. First of all, I want to welcome the witnesses and thank you for your testimony. I think that all of us appreciate people who come up with ideas here to try to help us solve this problem. There are many different ways of looking at it. You know there's an old saying about necessity being the mother of invention. We are reaching, I believe, a point of synergy, where some of the best minds have come together to try to find some solutions that are workable.

Mr. Sullivan, I would be particularly interested in what are the implications for those people who will have solved for their industries the Y2K problem and when we get to the year 2000 how would they exchange data with somebody whose computers are still in the year 1972.

Mr. SULLIVAN. Well, in general the interfaces for these systems are all remaining as they were in the past. The interfaces typically are still in real dates, if you will. But I would suggest to you if you look at the internal formats for dates, including dates that are exchanged in transaction tapes and so on, often it's hard to tell what those dates are. I mean once they are converted back by a program that displays it as a 98, then you understand that it's 98. But internally, data is represented however the program designers and system designers choose to represent it. The representation for a date in Oracle is not the same as a date in DB2, even for the same date.

So I suggest that in general, the interfaces are established. There's bilateral or multilateral agreement on the formats and the content. And then based on that, that's how we proceed.

Mr. KUCINICH. In a perfect world, it's nice to imagine symmetry in design. So thank you.

Now, Mr. Webster, in your written statement you make a reference to martial law. Is that a colloquial reference or is that a premonitory reference?

Mr. WEBSTER. It's actually a situation I can see. Again, I could go through that opening paragraph and—

Mr. KUCINICH. I know. What do you think?

Mr. WEBSTER. What do I think? I think it is possible that we could well have a situation in one or two cities where we have riots, much as we have had in years past due to either breakdowns in services, breakdown in utilities, failure of social services and so on, and that the National Guard needs to be called in. It's not something I see nationwide. It is something I see on an isolated basis, much as I have indicated here.

Mr. KUCINICH. But if we have Mr. Sullivan's program, we won't have riots. Right?

Mr. WEBSTER. Well, the problem, you know you hear talk about how Y2K isn't a technical problem, it's a management problem, which it is, a big management problem. Beyond that, it is a human problem. The fundamental challenge we have in information technology is that it involves a lot of decisions made often at cross purposes. As Ranking Member Oberstar quoted me from the National Journal, saying that we produce a lot of crummy software and there's a lot of road blocks to getting stuff done on time.

There are failures that will occur regardless of Mr. Sullivan's solution, because either people won't apply it, it won't be appropriate, or there won't be time remaining.

Mr. KUCINICH. OK. Are you working with your group? Do you have people in the aviation industry working with your group?

Mr. WEBSTER. We do have people who attend, both from the Air Transport Association, from American Airlines and some of the others.

Mr. KUCINICH. Can you describe how they are developing their contingency plans?

Mr. WEBSTER. No, I can't. I haven't talked with them. The group we have, the WDC Y2K group meets monthly to bring people. We usually have 300 or so people attend to have presentations on various subjects. I do know from one talk I have had with someone representing a major airline that they are very confident on how they are doing, but said that other airlines are calling upon them now to help because the other ones, some of these other ones are not as far along. That is the extent to my knowledge and it's hearsay.

Mr. KUCINICH. Can you describe some of the impacts that the Y2K problem in aviation will have on members of the D.C. Y2K group?

Mr. WEBSTER. I'm sorry. I'm not sure I fully understand the question.

Mr. KUCINICH. Can you describe some of the impacts that Y2K will have on aviation?

Mr. WEBSTER. On aviation? If you go back to the second page to talk about the disruption. The first corporate information systems you have issues of simply running the corporation, of ticketing, of scheduling and so on. The airplanes I think are, Boeing, Airbus and so on are very good at checking out their airplanes.

The legal issue may be a key issue, as has been referenced I believe by Mrs. Morella, that if there is any question about safety, if there is any question, well about safety, I think you will see a voluntary and indeed mandated restriction on the amount of flying because they don't want the liability in case things happen.

Mr. KUCINICH. I want to thank the gentleman. I want to thank the Chair as well and just make this observation if I may.

I think it is important for the witnesses to bring us information as it relates to the aviation industry. That is why we are here. I would also say that in all of these forums that we have had, which Mr. Horn as the chairman of my subcommittee has been kind enough to arrange and I know Mrs. Morella and others have worked to proceed in a way that has been dedicated and responsible. I would just caution all witnesses about making statements that would predict things like riots because while we certainly have to prepare contingency plans for any contingency, I don't think we want to create a climate of fear in this country about what might happen. It is our job in working with the private sector, because this is certainly one area where the public sector and the private sector have to work together, to make sure that we address this as best as we can. Certainly we are all concerned about areas such as aviation, utilities and such, but we want to be careful about how far we go with making predictions about dire consequences, because the public is very concerned. I want to make sure that we provide assurances that every effort is being made to try to address the concerns which the public has.

Thank you, Mr. Chairman.

Mr. DUNCAN. All right. Thank you very much, Mr. Kucinich.

Dr. Ehlers.

Mr. EHLERS. Thank you, Mr. Chairman. A couple questions for Mr. Sullivan. I am just trying to understand some of the details of your approach and your product.

You are saying it is basically a contingency approach that organizations, institutions should have this program available if they flip the switch on the year 2000, I'm sorry, don't flip the switch, the time changes and the program doesn't work, they put your package into operation and the program works until they identify the problem. Is that a correct understanding? You are not advocating this as a permanent solution.

Mr. SULLIVAN. No. I am not advocating it as a permanent solution. In general, any programs that have year 2000 problems in them, there was some expectation somewhere that they would have been replaced by now. I am just really indicating that in many cases these same systems will be in fact replaced in the normal course of business, as the gas pumps were replaced with ones that could read credit cards and so on. So that if we can buy time, it may only be a few months, a few years, and keep those old reliable programs running for a little longer, I think we can deal with this issue in the normal course of our business.

So I am not suggesting this be a permanent approach, but rather where it works, because it is benign, because it does no harm, because it doesn't destabilize our old programs often which are unknown and undocumented, then it ought to be applied to be able to continue to run those modules that it works for for a little longer.

Mr. EHLERS. OK. But the code will have to be rewritten anyway, and the sooner the better.

Mr. SULLIVAN. Well, not necessarily. In some cases, and again, we know of two systems in Treasury that the replacement system has already been in the works for some time. It just is overdue. And that there is no intent to actually remediate or retain these programs that are being modified any longer than when the new system is available.

Mr. EHLERS. All right. I also find many organizations using this as a marvelous excuse to get new systems, which is perhaps not all bad.

One just detail. In the dim recesses of my mind, I remember that every 400 years we have to add a leap day to our calendar. I believe this is the century we do it. I presume it's January 1 or something. I don't know what we would call it. Yes, January 1, 2001, which is the start of the new century. Is that correct? Does this change your program?

Mr. SULLIVAN. Well, no. What is really true about the leap year, the calendar, is that—

Mr. EHLERS. Leap day, not leap year.

Mr. SULLIVAN. Well, it's a leap day, but it's a leap day in a leap year. The rule for centuries is that centuries are not normally leap years. 1900 was not a leap year, even though it's divisible by four, 1900 was not, 1800 was not, 1700 was not, nor will 2100 be. But once in a lifetime opportunity, 2000 is in fact a leap year, which makes it the same as 1972. So in fact, the technique I described won't work again in 2100. We'll need to do something else before then.

Mr. EHLERS. No. I am not talking about years divisible by four. I am saying every 400 years there is an extra leap day because we don't have exactly 365.25 days per year average, so we have this extra adjustment.

Mr. SULLIVAN. Well, sir, the adjustment is in the other direction. The century is normally not a leap year.

Mr. EHLERS. Oh I see.

Mr. SULLIVAN. Even though divisible by four. But 2000 is our once in a 400 year opportunity where we do have a February 29 in 2000. We did not have February 29 in 1900.

Mr. EHLERS. OK. Thank you.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Mr. Davis.

Mr. DAVIS OF VIRGINIA. Thank you very much. I don't want to make predictions on what will happen if things don't work, but I know this. If people don't get their paychecks, if planes aren't taking off, if they take off,if they can't land, if the electricity doesn't work or there's sporadic blackouts, if the ATMs don't operate properly, if telephones don't work, if the traffic signals go out at rush hour, I don't want to predict what people will do, but I know if there are early primaries, I wouldn't want to be on the ballot as an incumbent at that time.

These are huge issues. No one knows exactly what is going to happen. We will be doing some tests, but there is nothing like the real test, which is what happens of course on New Years Day, and particularly the transportation system. Unlike some of the other areas, transportation can be life or death. That is why I think that the chairman is holding this hearing and we are trying to get some of your comments and predictions. I wouldn't want to hazard a guess, but I don't think it will be very pleasant for anybody involved in the process. All we can do at the congressional level is really hold hearings and try to hold the executive branch accountable to create a dialog between State and local governments and the private sector and make sure that the public is aware of this so that when they buy products, they will find their Y2K compliance, the microchips and the like.

So let me ask you, Mrs. Morella asked you about the microchip situation. But really there's not much you can do with a defective microchip that's not Y2K compliant except replace that product or chip, is there?

Mr. SULLIVAN. Again, my feeling is that this idea of lying to the chip about the time or the date, if it works, it may be effective in some of these other types of products as well, again as a holding action. That in many cases they don't care too much about the calendar and it may be just setting them back by a year or 2 years.

Let's take your VCR. Obviously instead of having to rush right out and buy a new VCR, which is not a life and death issue, if it doesn't work for the year 2000, you could go ahead and set it to an earlier year and get by and it would do its programming and all the things it would need to do by the day of the week perfectly fine, even though it says it's the wrong year.

So again, I am suggesting when we get to the point of pragmatism, this approach may in fact work for some of these embedded systems as well. We need to clearly document these. We need to schedule them for ultimate replacement. But if it's as a holding action, if it works and works effectively and can be tested, I again suggest it is time for us to look at that as a viable way of dealing with these things in the short term.

Mr. DAVIS OF VIRGINIA. Would you both agree that the interdependence of an airline system and our partners and suppliers, both foreign and domestic, that make the aviation industry so complex, a real complex network and web, make the Y2K issue not only difficult to address, but make it likely that certain Y2K problems just aren't going to be fixed before the year 2000? And that in point of fact, when this issue comes, we are going to be dealing with problems maybe no one had thought of and dealing with them kind of case by case and ad hoc.

Mr. WEBSTER. Given my experience in software engineering, I would have to say yes. The truth about information technology, it's not only more complex than we understand, it's more complex than we can understand. We tend only to see where these complex interconnections are as problems flush them out. A case in point. When the Galaxy 4 satellite decided to go drifting off earlier this year, most people weren't surprised that they lost pager service of it, but a lot of people were surprised that they couldn't buy gasoline at certain gas stations that were using it. I'm sure NPR was surprised it suddenly lost its feed to a lot of its affiliates. Hospitals, in particular, were put into trouble because suddenly they were dealing with doctors and nurses who couldn't be reached via pagers.

So you have sort of in order consequences that ripples through. There are things that become exposed only as the failures occur. Given the sheer volume of information technology on all the various levels that have been touched upon today, it is doubtful that we could literally track down and find all the Y2K bugs and fix them. Our best bet, I mean my personal opinion is January 1, 2000, will be a bit anti-climatic because I think we'll be all hunkered down. It won't be business as usual. We'll all sort of be holding our breath and taking precautions and deal with it. But we will not have things fixed in time, no.

Mr. SULLIVAN. I agree. There's no way that we will not have problems. Software is not an exact science. I have been doing it for 35 years. I don't know anyone who has been doing it anywhere close to that amount of time that thinks it's an exact science. So when people say no sweat, we've taken care of it, it's all finished, we'll be done by tomorrow, September 1 or October 1, it is very easy in this business to say we're done with remediation by declaring ourselves done. Then we could be done with uni-test just by saying well, whatever we don't find in uni-test, we'll pick up in systems test. Then we could take a product like Windows and put it on the market with 5,000 known bugs saying well, we'll get around to those later with fixes and remediations later.

So that you know, it's easy to push these problems downstream, put things into production. I suggest in aviation that is very dangerous. I am concerned that we have certification for pilots, certification for mechanics, but no certification for the programmers that are currently working on these systems.

Mr. DAVIS OF VIRGINIA. Thank you. I think my time is up. Thank you.

Mr. DUNCAN. I want to apologize to Ms. Norton. I should have gone to her first going from party to party. I overlooked you, Ms. Norton, and I very seldom do that, and I apologize.

Ms. NORTON. Thank you, Mr. Chairman. Thank you so much. That's perfectly understandable.

I arrived late for which I apologize. Perhaps the matter I raise was earlier addressed. I don't so much fear riots as I do fear other events, perhaps more serious. As I see this problem, the metaphor of a cobweb occurs to me. I am interested in matters not under our control. Suppose that the Federal Government, for once, did everything right, did all the necessary testing, and in fact, Mr. Sullivan got where you said we can't possibly get, done, finished. Let's go onto the next challenge. Suppose someone else's system fails. Someone else is either negligent or didn't get it right or didn't start in time or some other reason, the system just isn't up to where our perfect system is. Is there anyway to guard against such failures, the failures of others?

May I also ask what is the worst case scenario that is reasonable to expect, not what is the worst case scenario. I think we understand that the end of the world may be the worst case scenario. But all things considered from what you now know about what is happening in the universe at large, considering that we are linked into people across the face of the Earth, I ask also what is the worst you think could happen. But I ask first, is there any way to guard against the failures of others to ensure ourselves in some way against those failures?

Mr. SULLIVAN. I think that it probably is necessary for anyone who has their own problems under control or the perception of that, that they then look at this exact issue of the interfaces. We have for a long time trusted interchange of information because again, these systems have been built up over a long period of time and we have come to expect that they will function correctly. What we are doing now in interchange is kind of as we developed our own languages, it worked and so we have been doing it.

I think among the things that need to be done are very specific interface tests or interface controls to make sure that transactions from the outside will not contain elements, erroneous elements that would cause our own failures. All that means is that we at least won't put ourselves down if we get bad data from someone else. But I think that's certainly necessary to do that kind of thing. Again that's the characteristic of the solution that I suggest.

As to the worst case scenario, I think Bruce is probably better prepared to answer that. But I did see an internal briefing memo in Gardner Group where they tried to put the Y2K problem into perspective. They started out with a nuclear disaster killing off 80 percent of the species. Then they had a meteor hit would be 50 percent of the species. They assured us that Y2K will not result in the elimination of more than 1 percent of the species. That was their number.

Ms. NORTON. I am trying to get the worst case scenario that is reasonable to expect rather than everybody's speculation about how the world could come to an end and the planet will be blown away.

Mr. WEBSTER. Sure. Addressing your first question, what you are discussing is contingency planning. I spent 9 months setting up contingency planning for a Fortune 50 corporation on Y2K. The issue is you say how can we survive and be stable in the absence of continued functioning of certain or key partners. You in essence have to develop a set of scenarios, and more important than that is set up priorities and principles by which to decide how will we judge, what will we do if certain events happen, and how will we deal with that.

Worst case scenario, if we have the leadership and effort that I think we can and should have in this country, I think we can probably handle most of the worst case situations here. I think the reasonable worst case scenario is probably a significant economic downturn, possibly a full recession, due primarily to lack of Y2K remediation in the rest of the world.

That means interruptions in all of the various inexpensive imports that we bring into the country currently, including oil, including consumer goods, disruptions in the air travel possibly to other countries that aren't handling it. There may be other benefits to the United States. The United States may be seen as a safe haven for money, so you may see a big financial transfer from foreign markets into the U.S. markets. The problem is there are enough unknowns between now and then, it's hard to say here's what we'll cut off.

Ms. NORTON. Thank you very much.

Mr. DUNCAN. Thank you, Ms. Norton.

I am a little curious, Mr. Webster, you mentioned that you think on January 1, 2000, we'll be hunkering down, taking a deep breath, trying to come up with or determine what precautions we should take or something to that effect. Do either of you have a guesstimate as to how long the serious parts of these problems might continue? Will business be pretty much back to normal by January 2 or February 2 or will we be feeling the serious repercussions from this problem for a year or two or more?

Mr. WEBSTER. The answer is sort of all of the above. The organizations that have taken the time, be they Federal agencies or corporations, that have done the work will probably be able to bring themselves up and be stable by sometime I would guess the end of the first week of January. But it may take longer, based on who their partners are and what has to be done.

Embedded systems problems, you know, first we have to say problems are not going to all hit on January 1. We are going to have problems leading up there, and we are going to have problems that are going to be showing up for days and weeks and in some cases months afterwards, particularly in embedded systems, where things continue fine for a certain period of time and then the errors or problems become visible one way or the other.

I think the overall disruption will be, you know, that the most intense disruption will probably be for a week or so. As I said, I think by the time we get to the end of next year, we are going to be so sick of hearing about Y2K. It's going to be sort of El Nino squared. That people will say ok, you know, let's just wait. Let's just not do things. Let's see what happens. That alone will reduce the impact. This is not going to hit us unaware. We are going to be totally aware for it, totally prepared. My feeling is what is key is leadership, because what we need is social cohesion. That will mitigate more than any other single factor, social cohesion and leadership will mitigate the impacts of whatever Y2K events do occur.

Mr. SULLIVAN. I agree with Bruce. My disappointment is in no one from the administration standing up and saying we have an objective. I mean we are trying to achieve this level of performance. We are trying to have this happen. What I see instead is we are going to try to utilize our resources well. We are going to try to do the best we can. That is, the process is being managed. But I haven't seen the goal. I haven't seen the objective that here is what we are going to try to achieve. Because we are going to start seeing these Y2K failure stories. The press will not pass up a good airline crash. The press is not going to pass up these failures. Those are going to concern people and they are going to be worried, as they are when they read about an airline crash. Are they going to get on an airplane.

So you are going to see that same phenomena begin in 1999. If they can't get their confidence from somewhere that everything that's computerized is at risk, that is going to cause quite a bit of disarray in the social fabric. Regardless of what the technical problems are and how they may be resolved, this trust we have right now, this kind of implied trust that technology will work, is going to be eliminated big time starting next year.

Mr. KUCINICH. Would the chairman yield?

Mr. DUNCAN. Yes. Mr. Kucinich.

Mr. KUCINICH. You know, I just want to state for the record that there has been several hearings with various Government agencies that have shown that people have set target dates to meet performance levels, compliance levels, and I think that it's important to recognize that and not to let enter into the record unchallenged these broad sweeping statements that would imply that the Government hasn't done anything, because that is just not true. You know, we're getting a little bit fast and loose here right now.

Mr. Chairman, I have been in many of these hearings, both in the district as well as here in Washington. I appreciate the fact that people come forward to testify. But these witnesses aren't plenipotentiaries. I mean they are just people that are dealing in this business. It's good to have you here. But we have to realize that the source of the testimony represents a narrow view of a certain part of an industry and not suddenly the spokespersons for the entire world on this.

I mean you have to forgive me, gentlemen, but let's put this in perspective. You know, we are going to hear from Ms. Garvey. I am looking forward even more now to hear from Ms. Garvey, because I want to hear something that's really happening as opposed to speculation.

Mr. DUNCAN. Mr. Sullivan, you mentioned the press and you mentioned the press can't pass up a good crash. When we have held hearings in the Aviation Subcommittee about plane crashes, we have been loaded with cameras. In fact, many of our hearings on even other subjects have had cameras present, from the President, from various networks and so forth and C–SPAN. Yet I notice today nobody is here. I just wondered, do you gentlemen think that there is—and yet I seem to have read a lot of publicity about this. Do you think there's a great deal of public awareness or do you think that most of the public is not really alert about the problems in this regard? What do you gentlemen think about that?

Mr. WEBSTER. The only poll I have actually seen on it indicates that about two-thirds of the American public does not have much awareness on the Y2K. As far as the media coverage itself, it follows I think a classic hype anti-hype cycle. You have a story that says, you know, the world is going to end. Then you have a story that says the world is not going to end. The result of the two extremes, which is what most people are exposed to, is they either become desensitized to the problem or the press simply loses credibility.

As I said in my opening statement, the extreme positions are not either feasible or the ones that we need to promulgate. The fact is, I think we will have serious problems that we have not had addressed. Again, I will say I have made assertions concerning the state of Government agencies, but I will assert that we have had a profound lack of leadership from the administration on this subject. In the absence of visible leadership, any information from any source will fill the vacuum.

Mr. DUNCAN. Well, now what are you talking about specifically there when you say lack of leadership? What do you think that the administration should be doing, for instance?

Mr. WEBSTER. Well, I thought President Clinton gave an outstanding speech to the National Academy of Sciences. It was good. It was concise. It was relevant. He touched on all the good points. It was done in the morning. It was not televised. I dare say 99 percent of the population of the United States never saw it. That should have been, in my opinion, done on prime time television. It should have been part of his State of the Union address back in January. This is not a new problem. The problem has been known for decades. The Federal Government has known about it for years, has been working on it for years. But it is in the absence of saying basically then I am—well, I won't state my party affiliation, but it's in the minority here.

The President emphasizes education, social security, and rightly so. This will have a far greater impact on the social well-being of this country than either of those issues over the next 2 years. It should get at least equal weighting in my opinion.

Mr. DUNCAN. Mr. Webster, since everything is so tied in or so based on utilities and on power and so forth, how likely is it, do you think it is that we would have a disruption in our utilities?

Mr. WEBSTER. I was being fairly optimistic until I attended the opening hearing of the Senate Committee on Y2K in which Senator Bennett announced that they have surveyed 10 of the largest power companies in the United States and 8 of which said they were still in the assessment phase. For those of us who work on Y2K, that's a big red flag. If you are a corporation or organization of sufficient size, you should have been done with assessment last year, not in the summer of 1998.

Again, I think the power grid as a whole will survive. I think you may see rolling brownouts, as I mentioned, in certain areas of the country.

Mr. DUNCAN. All right. Well, gentlemen, thank you very much. We need to move onto our next panel. You have both been outstanding witnesses and we certainly appreciate your being here with us. Thank you very much.

We'll call up the next panel at this time. That is the Honorable Jane F. Garvey, who is Administrator for the Federal Aviation Administration, and Brigadier General Retired John J. Kelly, Jr., who is assistant administrator for Weather Services of the National Oceanic and Atmospheric Administration.

I would like to ask first for both of you to please stand and raise your right hands and be sworn.

[Witnesses sworn.]

Mr. DUNCAN. You may be seated.

Administrator Garvey, you may begin your statement. Thank you very much for being here with us.

TESTIMONY OF JANE F. GARVEY, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION; AND BRIGADERE GENERAL (RETIRED) JOHN J. KELLY, JR., ASSISTANT ADMINISTRATOR FOR WEATHER SERVICES, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Ms. GARVEY. Thank you very much. Good morning, Mr. Chairman, Chairwoman Morella, Mr. Oberstar, and members of the committee. I appreciate very much the opportunity to appear before you this morning to discuss the FAA activities with respect to the year 2000. I have already submitted my formal written testimony and I would like to ask that it be made part of the record.

Mr. DUNCAN. It will be made a part of the full record.

Ms. GARVEY. Thank you. This morning I would like to offer a few comments to talk about where we are at the FAA, what we have done, and what we are doing to solve this problem, both within the agency and within the aviation industry. Mr. Chairman and members of the committee, I have made the Y2K issue a top priority. As some of you have mentioned, we have created an agency-wide program office at the FAA which reports directly to me. We have closed significant gap in OMB's Federal Y2K compliance schedule, and continue to move steadily toward resolving this issue within the agency.

Our teams in the field have already assessed every system in the FAA, not just the mission-critical systems. We are now well into our renovation phase, where we actually make modifications to the systems that need them. By the time of the next OMB quarterly report, the FAA is scheduled to complete renovation of 99 percent of all required systems. Those systems will be subject to independent validation and verification, both by an outside contractor and reviewed by the department's inspector general.

I do want to mention the two systems that won't be done. They are not part of the air traffic control system. They actually are computers which process pilot records and aircraft records. They will be renovated in the November/December timeframe. We saved $2 million by waiting until that timeframe. We talked with OMB and they are in agreement with that.

We are then on schedule to have the majority of our systems compliant within the OMB's deadline of March 31, 1999. All of our systems will be fully compliant by the end of June 1999. We continue to evaluate our schedule to see if we can pull additional systems into the March 31 timeframe.

We have overcome many obstacles to get where we are today. I am proud of the work that we do, but I also know that we face many challenges in the months ahead. One of the challenges is working with our partners in industry to identify other areas within the aviation system that require a solution. I would like to highlight some of the activities that we have undertaken at the FAA to address those industry-wide concerns.

First of all, along with ATA, the FAA conducted and sponsored an industry day in June of this year. We have another one scheduled for late October. Our goals in these forums are threefold. First of all to assess the situation. Second, to identify solutions. Third, to avoid duplication. The industry days bring together key stakeholders from all sections of the industry. They have been very well attended. Over 120 were at the June Industry Day. I think it's fair to say that we all felt that it was extraordinarily beneficial.

We have also communicated with manufacturers of critical airport systems, stressing the need for their products to be Y2K complaint, and asking that pertinent information be sent to the affected airports and the FAA. We have also distributed and developed a comprehensive airport systems list, distributed that to over 5,000 public airports to help them identify and correct Y2K issues.

In these outreach activities, we have learned that some airports, particularly the smaller airports, are having difficulty with Y2K compliance because they lack the resources to conduct the assessments of their existing facilities. In an effort to aid those airports, we are proposing an amendment to the FAA reauthorization bill now pending, which would provide authority during fiscal year 1999 only, by the way, for airports to use their AIP program entitlement grants or State apportionment funds to assess all of their facilities. We think this will help particularly the smaller airports.

On the international front, we have a great deal going on. We have a project planned that was completed in April. We have a director of the international office. That project plan lays out a very clear blueprint for coordination with our international partners. We are working very closely with the International Civil Aviation Organization [ICAO] to raise awareness of Y2K issues in the international community. We have assigned a fulltime employee to work with ICAO in Montreal to offer guidance in support in any way that we can.

Last week at the September session of the ICAO assembly in Montreal, I had the pleasure of introducing two Y2K resolutions on behalf of the United States. The first resolution urges that each ICAO member State provide Y2K status in the form of a notice to airmen no later than July 1, 1999. The second resolution will require ICAO to develop and publish for use by its member States an international assessment criteria for each State, so that's including the United States so that we can all use it to assess the progress made by the individual countries. I am happy to say that both resolutions were very well received.

Mr. Chairman, while I am pleased with the progress that the FAA has made in solving our Y2K problems, we recognize that this is a unique situation and it is a deadline that some, as you have suggested this morning, will not move. We appreciate the oversight and the support that Congress has provided. We think that's been instrumental in encouraging all of us to work collaboratively to assure a smooth transition into the year 2000.

Let me say I feel much better than I did last February when I appeared before both of these committees. But I have to say, I am not over confident and I won't be until January 2, 2000.

Thank you very much for the opportunity to address these three committees and I would be happy to answer any questions that you may have.

Mr. DUNCAN. Well, thank you very much for being with us.

General Kelly, you may begin your statement.

General KELLY. Mr. Chairman, Chairwoman Morella, Mr. Oberstar, members of the committee, it's a pleasure to be here today to testify on the subject of year 2000 testing and compliance at the

National Weather Service and our relationships with the aviation and general public communities. I have submitted written testimony and would request that it be made a part of the record.

The National Weather Service, in conjunction with other National Oceanic and Atmospheric Administration agencies and the Department of Commerce Information Technology groups has been working since 1996 to ensure all our systems are Y2K compliant so there is no disruption of operations when the millennium date change occurs.

A point to remember regarding actual weather data is that it, unlike data using other sectors of the economy, the date and year do not affect it. The reason for that is all weather data is characterized by a six digit code. The first two digits represent the day of the month, and the last four digits characterize the hour of the day. So while the actual weather data is and of itself not a problem as we convert from 1999 to the year 2000, the data is produced and the data is communicated using automated information systems. So we are in the process of assessing all National Weather Service computer base systems, applications software, system software, hardware, communications, and non-information processing systems in accordance with the U.S. Government's Y2K compliance standards and requirements.

All our systems, both mission and non-mission critical have either been certified or are in the process of being certified as Y2K compliant. We plan to have all Y2K related fixes fully implemented at all National Weather Service sites by the end of March 1999.

National Weather Service operations are complex and widespread, which makes Y2K compliance of particular importance. National Weather Service has over 170 communication interfaces with other Federal Government agencies, the private sector, research institutions, and other nations. These interfaces involve the receipt and transmission of thousands of observations every hour, which are input to our complex mathematical numerical weather prediction models.

Aviation operations at all U.S. airports are dependent on these hourly and special surface weather observations, as well as the airport terminal forecasts we produce. In addition, we receive similar data for foreign airports which are in turn transmitted to the FAA and domestic airlines to support their flight operations planning. On the average, we receive, transmit, and process over 50 billion characters of weather data every day.

This complex and vast array of users, interfaces, and data distribution mechanisms poses some external risks that must also be addressed. As with other organizations that are heavily dependent upon the national communication infrastructure, there is some risk to our operations if the telephone companies we rely on are not Y2K compliant. There is some uncertainty regarding the receipt of international weather data. As part of the overall contingency planning we are doing, we are assessing these potential risks so that reasonable contingencies are in place to ensure that continued flow of weather data.

In addition, we continue to pursue the President's fiscal year 1999 budget request for $4.9 million to procure and install a class VIII supercomputer at our National Centers for Environmental

Prediction. This upgrade will provide a Y2K compliant system and provide us the computing capacity to improve weather prediction modeling and increase the accuracy of our aviation products and our severe weather products.

To make certain our Y2K certification is valid and integrated, end-to-end test will be conducted in February 1999 over a 3 day period to demonstrate that our Y2K certification is valid. The testing has been developed in consultation with and will be done in conjunction with domestic and international partners like the FAA, the U.S. Air Force, and the private sector.

Our planning and testing are designed to ensure we can continue operations during the Y2K date change with no interruption of services.

Thank you for the opportunity to testify, Mr. Chairman. I would be happy to answer any questions you may have.

Mr. DUNCAN. Thank you very much, General Kelly. I am going to go first for questions on this panel to Chairman Steve Horn.

Mr. HORN. Thank you, Mr. Chairman. I appreciate the opportunity to question these witnesses. They are key people in terms of what is going to happen within the executive branch.

Let me start with Ms. Garvey. You stated that the next quarterly report the FAA's mission-critical systems will be 99 percent renovated. What percent will be renovated by tomorrow, September 30th, which was OMB's deadline for renovation completion?

Ms. GARVEY. Mr. Chairman, we will have 99 percent renovated tomorrow. What we are going to need the additional 2 weeks for is to make sure we get that independent validation, both by our outside contractor and the IG. They have done a great deal of it to date, but we want to be able, when we report to OMB, to also have the benefit of that independent validation. So we'll have them all renovated tomorrow with our own validation, but we'll use that little additional time to get the independent validation from the IG, who has been by the way, extraordinarily helpful to us through this process.

Mr. HORN. Now your validation groups, I take, it are team 4 and team 5? And could you tell us what those teams are?

Ms. GARVEY. We actually have three types of validation going on. First of all, when a line of business does its work, it does its own validation. That then is moved into the program office, the Y2K program office, at which time we get the outside contractor, whom we've had on board since last spring. They do an independent, a quick evaluation. That then moves to the IG who does another evaluation. It goes back to the outside contractor after that for an intense in-depth validation. So we think it's a good insurance, belt and suspenders approach.

Mr. HORN. The validation approach within the FAA as I gather moves much more rapidly than the inspector general's validation.

Ms. GARVEY. Well, I would never suggest that the inspector general is not anything but timely.

Mr. HORN. I take it though the inspector general does take more time. Now what's the difference between the internal and the inspector general?

Ms. GARVEY. Well, I think there are actually two reasons. One is that the inspector general has a little bit fewer resources on this than we have. We have the benefit of having people both in the field and within headquarters who are available to us, and of course I think the resources is one point. I think that is really the main reason.

But I have to say we are working very closely. The turnaround time has been very good.

Mr. HORN. When do you think both groups will report, the 4 and 5 team would report in what, a couple of weeks?

Ms. GARVEY. We expect to have it as part of the formal submission for OMB, which is October 15th. People are literally working around the clock to get it done.

Mr. HORN. So that will be done for the October 15th quarterly report?

Ms. GARVEY. That is correct. But again, we did meet the September 30 deadline for 99 percent.

Mr. HORN. How about the inspector general's report? When will that come in?

Ms. GARVEY. I would have to get back to you, Mr. Chairman, on when that will be, but we'll get a date for you on that.

Mr. HORN. Do you still believe that after validation by both of these groups that it will still be 99 percent mission-critical systems renovation as of September 30th or are you dubious on some of that?

Ms. GARVEY. We believe it will be, Mr. Chairman. To date, the work that we have done has been very positive. We have not uncovered any unusual problems or any real difficulties. So we remain comfortably confident, but not overly confident.

Mr. HORN. As I understand it by the staff and GAO, every time the FAA reports the status of the systems, your baseline numbers seem to change. Now my staff, the GAO, even the inspector general have expressed concern about the baseline numbers that are changing all the time. So let me ask you. Does this mean FAA still does not have an accurate assessment of how many systems need to be fixed and what type of strategy is going to be used to fix these systems?

Ms. GARVEY. We have had some changes as we have moved through the process as we learn more about the systems and make determinations about whether or not something is in fact mission critical. So we have had some changes, fewer more recently though as we have gotten more comfortable with the process.

But I would also add that we meet every other week with the IG and with our colleagues from the Department of Transportation. So any change that comes along is again checked with them and talked through to make sure that we're making the right decision. So I think everyone is feeling much more confident and much more comfortable about the process.

I have to say even as we move forward, there may be still some slight changes as we learn more about the process.

Mr. HORN. Well, thinking of the October 15th deadline for the quarterly report, when can we expect to see a stable baseline of the number of systems that are currently compliant, being repaired, or being replaced?

Ms. GARVEY. That will be included in the OMB reporting system of October 15th. We'll be using the numbers that have been again, verified and checked by the IG.

Mr. HORN. Well, thank you. I wish you well.

Ms. GARVEY. Thank you, Mr. Chairman.

Mr. HORN. I yield back the balance of my time, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Mr. Oberstar.

Mr. OBERSTAR. Thank you, Mr. Chairman.

Ms. GARVEY. Good morning.

Mr. OBERSTAR. Administrator Garvey, good morning. It's always a delight to have you with us in this committee. General Kelly, congratulations to you on the splendid job the Weather Service does. Your resources are being tried heavily, taxed heavily in these days of hurricane activity.

General KELLY. It's been busy.

Mr. OBERSTAR. We admire the skill and professionalism of your staff.

General KELLY. Thank you.

Mr. OBERSTAR. I track the Weather Service. I am really a weather junkie, and stay up late at night to watch.

The heart of the en route system is a host computer system. There are 23 million movements a year managed by our ARTCC. The host microcode examination was completed the end of June as I recall in briefings with your staff, that there were two 70 year old retired IBM computer programmers who did extensive testing and created a patch that actually works.

The host does not count by calendar. It counts by binary clock that runs every 37 years. That current binary clock will run out in the year 2006. The host, if all plans for the DSR work according to the waterfall of your programming, will be replaced by then. Is that correct?

Ms. GARVEY. That is correct, Mr. Oberstar. In fact, we hope to have it replaced by 2000. The last drop date is October 2000. But we are, as you suggested, we are proceeding with renovation just in case we don't get some of those actually replaced in that timeframe.

Mr. OBERSTAR. Meanwhile this patch will actually cover the—

Ms. GARVEY. That is correct.

Mr. OBERSTAR. Would you not describe it here, but submit for the record the patch, how it works and what it does? I don't think we need to have a long technical discussion on that, but if Ray Long could submit that for us.

Ms. GARVEY. We'll do that, Congressman, yes.

Mr. OBERSTAR. I know he knows it well because he described it for me, and I just don't remember it.

Ms. GARVEY. I'll have him describe it for me too now. Thank you.

Mr. OBERSTAR. The other systems, for example, Stars, is now in the works and to be online next year this time?

Ms. GARVEY. That is correct.

Mr. OBERSTAR. It has already corrected the question that you are dealing with here. We will not face a Y2K problem with Stars. Is that correct?

Ms. GARVEY. We certainly don't expect any. In March 1997, the FAA issued a policy calling for all the new equipment to be Y2K compliant. We of course require the contractor to do extensive testing that we need to validate before we accept the equipment. Before we accept any of that new equipment, it will be tested in our tech center for Y2K compliance. But that is part of the newer contracts that we have with the FAA.

Mr. OBERSTAR. The principal problem with the host system is the code embedded in the hardware that tells it how to turn on, cooling, and maintenance systems, it is not computer software or hardware that actually controls traffic, and that should this patch not work I understand, that it can actually be turned on manually every 2 months?

Ms. GARVEY. That is correct.

Mr. OBERSTAR. To ensure that this system hits the thermal conduction module. You probably can't see this here, but Ray Long provided me with this very intriguing design of the isometric view of thermo conduction module.

If it doesn't turn on, the system overheats and shuts down, and that shuts down all air traffic operations. It isn't actually controlling the air traffic itself, but if—

Ms. GARVEY. That's exactly right.

Mr. OBERSTAR. The heating, cooling system within.

Ms. GARVEY. The heating cooling system, yes.

Mr. OBERSTAR. These things aren't brain surgery, but they are complex.

The Association of Airport Executives sent out to its members a survey of Y2K problems and asked its members to report back. Are you familiar with their reporting and what they have heard back from airport members?

Ms. GARVEY. We are familiar, and I know you are going to hear from Carol Hallett later, but I do want to say publicly how extraordinarily helpful they have been as well as AAAE and ACI in working with the airports.

I think the progress to date is varied. Some airports are doing very, very well, as you would expect. Others are having some difficulty. I think the assessment is really the first step. We have had a team that's been working with ATA and many of the other associations since June, meeting regularly to look at the airports, to take advantage of those assessments and to determine where we need to perhaps provide some additional technical help. So the progress to date I think is varied at the airports. I think it is going to be very important, as we move into that October Industry Day to really focus even more attention on some of those issues. That is why we think that language for the reauthorization could be very helpful to some of the smaller airports.

Mr. OBERSTAR. There are not only the FAA air traffic control system, airlines have internal concerns. There's 182 computers on board the B-777. All those have to be validated. Aircraft manufacturers, suppliers, repair stations, the international community, computer reservation systems, travel agents, power and telecommunication networks, all of those either interact with or support aviation services. Is your staff continuing to monitor the progress made in all these other related areas of aviation activity?

Ms. GARVEY. Very much so, Congressman. Again, I think as we have gotten our house more in order, we are focusing even more on some of our external partners.

As I mentioned, internationally we had the opportunity to introduce two resolutions last week. Those are being discussed by the technical committees this week.

Mr. OBERSTAR. I was going to ask you about your session at ICAO. You proposed two initiatives.

Ms. GARVEY. That's correct.

Mr. OBERSTAR. What has been the response so far from the international community?

Ms. GARVEY. The response was really quite positive. I had an opportunity to address the 145 countries that were assembled there. We really found some very strong support, for they are being discussed by the technical committees this week. But we are not anticipating any difficulties.

I do have to say that the issue of sort of full public disclosure, which is really part of what we are asking for, is for some countries difficult, and yet there was such a recognition that this is a global issue and one of such critical importance that I think the countries were much more willing to embrace this than they may otherwise have been. So I was very encouraged by the response that we received.

Mr. OBERSTAR. You asked for a NOTAM on public assurance of validated safety of their system through year 2000?

Ms. GARVEY. That is exactly right. First the criteria to be established by ICAO. That criteria would be established in January. Then beyond that, by July 1999, a notice to airmen, or what's called a NOTAM in the international community, a notice that would indicate exactly where each country was in relationship to those criteria.

Mr. OBERSTAR. Now the four steps of addressing this issue have been the awareness, the assessment, the renovation, which you will have at FAA completed to your satisfaction by tomorrow. Then the validation phase, and final implementation. Excuse me, five.

Ms. GARVEY. That's right.

Mr. OBERSTAR. The implementation. You have already had outside contractors doing assessment and renovation and validation. Where does this next step go now? Who else has to be involved in validation?

Ms. GARVEY. The independent validation is of the renovation work, but we will keep that contractor on board as we move into the testing phase so that we again have outside validation of the work that we're doing.

Again, in addition, the inspector general has a very strong commitment to this issue as well, and will be working with us as we do the testing and as we move forward into the testing phase. So we're getting a lot of good expertise and outside advice and counsel, both from within Government and from outside Government as well.

I met yesterday with GAO to talk about some of the issues that they have raised as well.

Mr. OBERSTAR. OK. Well, there are a number of other questions that I would like to explore with you, but I think I have been staying in touch with Ray Long regularly on this matter. He's been most cooperative.

Ms. GARVEY. Thank you very much, Congressman.

Mr. OBERSTAR. And informative as well. So I just want to compliment you on the leadership that you have demonstrated in bringing people together, the collaborative effort that's taken place within FAA and with outside groups, and the progress that has been made to date.

Ms. GARVEY. Thank you. Thank you very much, sir.

Mr. DUNCAN. Thank you very much, Mr. Oberstar.

Chairwoman Morella.

Mrs. MORELLA. Thanks, Mr. Chairman.

Ms. Garvey, you know how I feel about the work that you have done. I think you've done yoewoman's work. I commend you for it. There are still big tasks ahead of us and I think you have done yoeman's work, General Kelly. You know that too.

But I wanted to pick up on one of the questions that Mr. Oberstar mentioned in terms of the ICAO. What, I mean I know the resolutions were submitted, the resolutions were well received, they obviously haven't been adopted yet because I guess that goes through a time sequence?

Ms. GARVEY. This is the week that the technical committees are taking it up.

Mrs. MORELLA. Okay. Do you have authority to suspend flights to certain countries if you are not assured that their systems are Y2K compliant?

Ms. GARVEY. If safety is an issue, Congresswoman, we do have that authority. The issue of safety is so critical and so paramount. We obviously and of course would not want that to happen. Obviously the economic issues surrounding that are something we would like to avoid. But in the case of safety, that is our paramount concern. That is our greatest interest.

Mrs. MORELLA. How do you measure that in advance?

Ms. GARVEY. We are really going to—we have been talking a lot about that internally, about how we will come to those decisions. I think mid-year of this next year it is going to be very important for us as we're looking at many of those issues surrounding it.

Just to make a couple of comments on that though. There are several steps of course before you would get to that point. The first question is, is there another backup? If there's a system that is not Y2K compliant, is there a backup system. Sometimes there is and sometimes that will work. If it is not, is there something that can be done manually. If it's the processing of flight data, for example, can it be done manually. That would be the next step.

The final step was there's no backup, if you can't do it manually, if there's nothing else you can do, then you really do look at the issue of if this is a system that is related to the safe movement of aircraft, then you may have to take that step or we may have to take that step. Not one we would take lightly, but one we are going to be monitoring very carefully. I think the international communities know that we would not hesitate if we felt safety was compromised.

Mrs. MORELLA. So you will be streamlining that system for that kind of evaluation too.

Ms. GARVEY. Exactly.

Mrs. MORELLA. It is critically important.

In terms of FAA's Y2K role in the oversight of the aviation industry, are you concerned about the fact that you have to rely on the aviation industry for their own self assessment with regard to their compliance?

Ms. GARVEY. Well, let me mention two or three points. One is that of course I think the cooperation to date has been extraordinary. Everybody wants this to succeed, so that there has been I think a real coming together of the community around this issue. So I think there's a lot of sort of self motivation on this, which is always important.

In terms of manufacturers, for example, we are also building into our inspectors just regular surveillance, the Y2K compliance issue, so that we have a way to check against, for example, a manufacturer's own self assessment. So we have a way to check which I think is very, very important.

So I think I am comfortable with the position we're in now. I think it's one that where we have a number of steps that we can take, and we have a number of contingencies that we can rely on, and we have an industry that is very willing to solve the problem with us.

Mrs. MORELLA. So you are saying in your answer then, Ms. Garvey, you do have a process?

Ms. GARVEY. We do have a process. With airports as well, by the way, because 139, there's some very specific having to do with the air side safety issues, where it's very clear that we have a real responsibility and have the ability to leverage some of the authority that we have.

Mrs. MORELLA. And you are coordinating with other agencies too?

Ms. GARVEY. We are coordinating both with ATA, for example, and also with individual airports and with the airport organizations like AAAE and ACI. So we have a lot of good coordination going on in that area.

Mrs. MORELLA. Of course the smaller airports is a major area of concern for us.

Ms. GARVEY. Absolutely. And one that I know both the airlines themselves, as well as the airport groups are very concerned about and working very hard.

We, by the way, are going to have a team of about five to six FAA computer specialists that will be made available to some of the smaller airports to help them and work those issues through, which I think will be helpful as well.

Mrs. MORELLA. Good. Thank you.

In terms of time, I just have to thank General Kelly a question. I don't want him to think that we're ignoring him at all. I wonder about your partnership with external customers to assure the uninterrupted exchange of data into the year 2000. I just wondered have all of the data exchange interfaces been assessed?

General KELLY. We have assessed our interfaces. Part of the reason we want to do early next year our end-to-end test is in fact to see if our assessment is correct and if our external users assessment is in fact correct. That is, when we send them the data, do they get it, and can they use it? So we have been working with private sectors, a number of private meteorology companies, the FAA, the Air Force, to take a look at the interfaces that we have and they have with us, to ensure that it will be a seamless passage of data.

Mrs. MORELLA. What is your time frame?

General KELLY. February 1999 is our plan to do a 72 hour test, we call it the end-to-end interface test, of our system.

Mrs. MORELLA. And telecommunications interrelates with you too. Do you want to comment on that?

General KELLY. Yes. That is an area of concern to us and I'm sure to the FAA is are the telephone companies going to be ready.

Mrs. MORELLA. So it's not just a concern. You are moving to working and assuring that the telecommunications systems are going to be—

General KELLY. Well, we're working to develop some reasonable contingency plans in case some of the telecommunication systems don't work.

Mrs. MORELLA. We look forward to hearing from you in the future too, General Kelly. I know I am in touch with Ms. Garvey often, but to also get NOAA's point of view as you progress. Thank you.

Thank you, Mr. Chairman. Thank you very much.

Mr. DUNCAN. Thank you, Mrs. Morella.

Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman.

Administrator Garvey, I want to join the others in saying that I think you have mounted a very successful, at least a very good start toward a successful effort in dealing with this troublesome problem. I still intend to stay off planes around that time, but that's just sort of a tradition of mine. I don't fly anywhere on New Years.

But I am curious about the AIP issue and how that's going to be monitored or assessed, because some airports, even some small airports, have already gone ahead. It was an ineligible expense at the time I understand. Now we are going to sort of have this or hope to have authorized this new expanded authorization for the funds. I am sort of concerned about some equity issues. I am also concerned about the monitoring of those expenditures and what they might be acquiring with those funds that they would have needed to acquire anyway. Could you address that a little bit?

Ms. GARVEY. I'll try. Let me say first of all that the language that we have offered, and again this is just being offered, but the language that we have offered would allow small airports or would allow airports rather to do the assessment because some of the smaller airports have said that's a real problem.

Some of the other Y2K compliance issues are already eligible under existing AIP eligibility. So for the actual purchase of some of the equipment, that is currently, that would be currently eligible. It is really the assessment where some of the airports have suggested they have got a problem. So we would monitor it the way we do now through our airports office, regional airports office, and then ultimately in Washington. But the issue about reimbursement for those that have already done it is one that we have not yet considered and we should think about that as well. We can talk with you a little bit further perhaps.

Mr. DEFAZIO. So basically there would be no expanded purchasing authority, just authority to pay for assessment?

Ms. GARVEY. That's correct. Again, it's really trying to deal with some of the smaller airports that have raised issues with us.

Mr. DEFAZIO. OK. Thank you.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you.

Mr. Ehlers.

Mr. EHLERS. Thank you, Mr. Chairman. First of all, I have to commend the administrator. In comparing the discussion today with the discussion last February, you and your organization have come a long way in a relatively short time, and I commend you for that.

Ms. GARVEY. Thank you very much, Congressman.

Mr. EHLERS. You really seem to be on top of it at this point.

A couple specific questions. I know you note in your written testimony as we already knew, that Ray Long has been appointed to head this effort within the agency. But you also comment in your testimony that you are working with the over 5,000 public airports, et cetera. Is Ray heading that up too or have you appointed someone else or do you have a specific task force? How are you going to implement? That's a huge task.

Ms. GARVEY. That's a fair question. That gives me an opportunity to say first of all what a terrific job Ray has done, but also how every line of business has a sense of urgency about this. I think Ray and I have said at several occasions that without that sense of urgency from every line of business, it won't work.

So in the case of airports, for example, Susan Curland, who is the associate administrator for airports, is taking a real leadership role to make sure that that piece of it, and she has a program person who is in charge of it, but that that piece of the Y2K issue is dealt with. All of that information though flows through Ray's office. So that if I have got a question, I generally go to the program office and they get to the right line of business, get the answer. We wanted to have one central place where it is coordinated. That's really the program offices, and Ray Long and Mary King's function.

Mr. EHLERS. And how is that coming along? Are there deadlines on that? Are there issues that you are dealing with there in terms of making sure the airports are up to snuff?

Ms. GARVEY. I think that is going well. We formed with ATA a task force last June, also in partnership with the regional airlines, a partnership with AAAE and ACI. That group is meeting regularly to look very specifically at the information that is coming in. I think we always have some concerns, as Congresswoman Morella suggested, about those areas where you don't fully control all of the outcomes. But I think it is going very, very well, with a strong commitment across the board.

Again, I would say that our primary emphasis has been and I think should be focusing on the air traffic control system and making sure that we get that in order.

Mr. EHLERS. I understand that, but I am wondering if this working group you have talked about has adopted timelines and schedules?

Ms. GARVEY. Absolutely. I am sorry I didn't answer that. Yes, they have. As a matter of fact, they are consistent with our guidelines with June 1999 being the target date for full completion. So we are trying to match those guidelines where we can.

Mr. EHLERS. A related question in terms of reaching out. You have a large field staff, a number of inspectors who may have to deal with this but may not have training in it. Have you been training your field staff, your inspectors and so forth to ask the right questions and to understand the answers they must ask the various airlines, the pilots and so forth?

Ms. GARVEY. We have done some training, but I would also add that we have really got the best experts in the world. The FAA equipment is so unique to the FAA and the folks who have maintained it over the years are really the ones that know it best. In terms of the inspectors going out to the manufacturers and so forth, they do have the right questions to ask. They know how to ask them and what they should be looking for. So we have provided that kind of training.

Mr. EHLERS. What about general aviation, particularly the individually-owned airplanes, not so much the business-owned airplanes. They may not be in some of your loops here.

Ms. GARVEY. Well, and they have been part of the Industry Day and in very good attendance. But that is something that I think some of those very individual aircraft are more of a concern. I think that's something as we get into the months ahead we'll have to even step up a bit.

Mr. EHLERS. Generally Kelly, you mentioned in your testimony a concern about telecommunications operators. You also amplified that a bit in response to a question. I guess the question for both of you is do you see that the telecommunications system in general in the United States is on top of the problem, is likely to meet the deadlines, and that you will not have a great deal of difficulty with any telecommunications equipment you are using, whether lines or switching systems, satellites, whatever?

General KELLY. I was all set to answer in the affirmative and then you threw the word "any" in. It is a very complex system. I am encouraged that the telecommunication companies understand the problem and are working on it. But given the importance of our forecasts to the lives and safety of American citizens, we are going to take the prudent course of action and try to develop some contingency plans to ensure we can get data moved around, just in case they don't succeed. But I am encouraged that they understand the problem and are working to address it.

Mr. EHLERS. Administrator Garvey, do you wish to add anything?

Ms. GARVEY. I would concur with Mr. Kelly.

Mr. EHLERS. I see that my time has expired. Thank you very much, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Mr. Kucinich.

Mr. KUCINICH. Thank you very much, Mr. Chairman. I would like to begin by going back to the testimony of Ms. Garvey. Just to cite some brief statements. In February of this year, she says I changed the FAA's approach to the Y2K problems. By tomorrow, page 2, September 30, the OMB deadline for renovations, the FAA is scheduled to complete renovations of 99 percent of all recorded systems, subject to review by Department of Transportation's Office of Inspector General. Page 3, we're on schedule to have a majority of our systems compliant within the DOT and OMB deadline of March 31, 1999. All FAA systems will be fully compliant by the end of June 1999, a date that we have accelerated from our original estimate of November 1999.

I think the American people owe you a debt of gratitude, as well as further encouragement on your efforts to try to make the system work. I think all of us understand the urgency of making sure that the FAA is Y2K compliant and that all of the other supporting systems are compliant as well, and that you have presented testimony here which I think any fair-minded person would have to conclude that the FAA is working very hard for its trying to make sure that the American people will be protected, that air traffic will be protected, that the system can work.

We know fully well there are many things that need to be continued, must continue to be addressed, such as the telecommunications interface. I think that it is important as we focus on the second panel for us to address performance and to be able to recognize that something has been done. I say this in the context of the previous panel which spent 2 hours, not withstanding whatever narrow expertise they might have, 2 hours speculating. Within five minutes, the administrator was able to cut to the quick and give real information about something really being done.

In a sense, I think that that experience represents a motif of what has been going on in all of these Y2K discussions, of people who know very little about what the Government is doing, making wild predictions about what is going to happen, and then administrators coming forward to state what they have done to try to make sure that the performance of the Government is up to par.

Certainly we have to respect the contributions of people like Mr. Horn and other Members, the chairman, Mr. Duncan, and others, who have been very conscientious in making sure the administration performs. I salute you for that. But we also have to recognize when people are attempting to do their job, and as a member of this panel as well as the ranking member on the Subcommittee Government Management, Information, and Technology I would urge all of you who are in attendance to focus on what speculations mean and what performance means. I am going to come down every time in favor of performance as opposed to speculations and hysteria.

I want to ask Jane Garvey, has the FAA been given enough resources by Congress to do the job it needs to do for the year 2000?

Ms. GARVEY. Thank you, Congressman. Congress has been wonderful in saying whatever it takes let us know. I really know I am speaking not just for myself but for the secretary and everyone who is working on this issue. We appreciate that immensely. Resources have been there when we have needed them and we appreciate that.

Mr. KUCINICH. I want to go to General Kelly. In your testimony on page 3 you state that an award of a contractor to replace the current class VII supercomputer with Y2K compliant class VIII supercomputer is pending. How important is that Y2K compliant class VIII supercomputer to making sure the National Weather Service is able to do its job?

General KELLY. The class VII computer is not Y2K compliant. Our plan was, since we were going to replace it with a class VIII, not to make it Y2K compliant. Since there is some dispute as to whether we will or will not get the class VIII, we have developed a plan to make the class VII computer Y2K compliant. So it will be Y2K compliant if we don't get the class VIII. The problem will be in the course of doing that, we will have to do extensive testing, which will require us to take the computer off of operational use for a few hours several days over about a 6 week period. But come January 2000, the class VII computer will be, if it's still there, will be Y2K compliant.

Mr. KUCINICH. Thank you, General.

Thank you, Mr. Chairman. I would like to just address the Chair for a moment and say that perhaps one of the many positive outcomes of having this particular hearing would be to have the committee look into what might be done to assist General Kelly and the National Weather Service to make sure that they get the Y2K compliant class VIII supercomputer instead of putting even more pressure on them to make sure that the class VII computer is compliant.

Mr. DUNCAN. All right. Thank you very much, Mr. Kucinich.

I believe that Dr. Horn had another question or two.

Mr. HORN. Thank you, Mr. Chairman. There's just one last question that came to mind when I had a chance to finish some of the witnesses that come next. Dwight Greenlee, who is the director of airport administration in the Wichita Airport, makes an interesting point which really hasn't come up. I would just like your response to it. He notes here the application process for the airport improvement program funds and the PFC funds is time consuming and once the moneys are assured, the purchasing procedures can prolong a project for 60 or 90 days. A fast track process should be formulated which allows all necessary assurances to be made and eliminate delay. The type of procedure could be applied to areas such as utilities, security, environment and airfield related safety systems and equipment.

He goes on to say a vast majority of airports carry general liability insurance. It is questionable whether this insurance will cover claims resulting from failures due to Y2K problems. Certain insurance providers are requiring the insured to provide additional information concerning their facilities, systems, and management procedures. If the response to these questions is satisfactory, the insurance provider will issue coverage for an additional premium. It is our desire to resolve Y2K problems prior to reaching the stage of liability claims. A resource such as the Environmental Insurance Fund should be considered.

Do you have a reaction to that thought?

Ms. GARVEY. Two comments. One, I think the point on streamlining the process is well taken. I had just seen that testimony and thought that was an excellent suggestion.

The liability issue is one that has come up before, and one that we have actually talked to Mr. Koskinen about, the need to really even get his help in bringing together the insurance companies to really take a look at what they are saying and if there is a way to work with them on some of those issues. So I think that is a fair concern and one we would ask the White House for some help on.

Mr. HORN. You cleared up one point as you went through your answers, that was apparently you are going to be able to have a sort of country knowledge as to the degree to which foreign nations are going to be helpful in this area and be compliant. You said that information would come a few months from now, I believe.

Ms. GARVEY. Well, we are gathering information. In fact, ICAO this summer, and one of the reasons we sent someone up to Montreal is ICAO this summer began the process of collecting that information. They have gotten some responses, not as many as they would like. IATA as well, the International ATA, if you will, has also begun some site assessments of individual countries. So that information is coming in to Montreal now.

What we are saying is that we think that even beyond that, establishing the criteria and then also having all the countries with an absolute date of July 1999, having to reveal just how they are doing according to that criteria will give us the kind of information that we will need to make some decisions.

Mr. HORN. What month do you think you will have that information?

Ms. GARVEY. We have a lot of it right now, but I think to say that we'll have all of the information, probably much closer to July than to January. We have a lot of it now, but I think it is fair to say we have more to gather, ICAO has more to gather.

Mr. HORN. So if we checked with you, we could find out the status of certain countries?

Ms. GARVEY. You certainly could. Certainly the ones that we have to date, we can let you know how we're doing getting the other information.

One other just interesting note in terms of the international, we know where 60 percent of the Americans travel. There are six countries that about 60 percent of our constituencies go to. What we have done is establish a kind of work team for each one of those countries so that we can work directly with them. In addition, either the secretary or myself has met with the head of, my counterpart of those countries to reaffirm how important this issue is. So we have got I think on the international front, we're doing a great deal.

Mr. HORN. Thank you.

Ms. GARVEY. Thank you, Mr. Horn.

Mr. HORN. I commend you for the progress you have made, as other Members have.

Ms. GARVEY. Thank you.

Mr. DUNCAN. Thank you very much, Mr. Horn. I hadn't heard that statistic before, six countries.

Ms. GARVEY. It's interesting. I was surprised. We actually know the top 90 countries too, but the 6 were really—please don't ask me those.

Mr. DUNCAN. No, that's all right.

Ms. GARVEY. I bet Mr. Oberstar knows though.

Mr. DUNCAN. Mr. Oberstar has a couple more questions on that.

Mr. OBERSTAR. Thank you. The aircraft manufacturers have identified as potential problem areas navigation systems, flight management systems, inertial navigation systems. What can you report on the status of the FAA surveillance of their compliance?

Ms. GARVEY. Well, I can tell you a couple of things. One, I appeared at an international conference in June with one of my colleagues from Boeing, and I was very impressed with the kind of work that they are doing to make sure that a number of the smaller manufacturers that they deal with are working hard at this issue. So I think the kind of work that a company like Boeing is doing is I think very reassuring.

We have sent out to all of the manufacturers assessments or asking for assessments. We did that in the summer, early summer months, June and July. We have gotten some information back. Quite frankly, we have been somewhat disappointed. We are now going back again. To his credit the secretary has said if you really are running into trouble, let me know, I'll put in some personal calls to people. The Deputy Secretary has volunteered as well. So we're still getting that information.

But what we are doing is asking our inspectors to build some of that into their forms. That is, they are going out and meeting with the manufacturers. They have that built into the normal surveillance as well. So we have more information to gather with the manufacturers. We think that's going to be a key part of the Industry Day in October. It's going to be very, very important.

Another issue that we have which has been very challenging is wondering if manufacturers can deliver on time some of the parts that we need for renovation. We have had to date, again, very good response. They have given us delivery dates that they have stayed with. We had one company where there was a difficulty. We asked the White House to give us a hand on that and they did. So I think we are in good shape on some of those.

Mr. OBERSTAR. Thank you. Finally, implementation. How are you going to go about implementation of the Y2K renovations? Will it be done in-house? Will it be contracted out? Will it be a combination of the two?

Ms. GARVEY. Congressman, at this point it will be done in-house. Again, we have got the experts, the people who have worked with these systems all their professional lives. Rolling that implementation out I think we've got some of the best people in the world to do that.

We are going to do some end-to-end testing in January and February, very similar to what Mr. Kelly had mentioned so that we can get a sense of how the end-to-end testing will go. But our experts are in-house. If we need them, I will say we won't hesitate to ask for some help and assistance, but I think we've got some resources in-house to do that.

Mr. OBERSTAR. Thank you very much. I have written down on a sheet of paper those six countries available for inspection.

Ms. GARVEY. Oh I know the six countries. It's the 90 I don't know.

Mr. DUNCAN. OK. Well, thank you very much. I was just asking, Mr. Horn, what was the grade that FAA got a few weeks ago?

Mr. HORN. Fortunately for FAA, they are part of the Department of Transportation. So we can blame Transportation for the problem.

Ms. GARVEY. We made a little progress. I called the chairman to thank him for that. He said he had a lot of faith, but he wanted it matched with some good works.

Mr. HORN. There's two ways to get to heaven, faith and good work. [Laughter.]

Mr. DUNCAN. Well, thank you very much. We need to move onto the next panel. But you have been outstanding witnesses. Thank you for being with us today.

The next panel consists of Ms. Carol B. Hallett, who is president and CEO of the Air Transport Association, Mr. Walter S. Coleman, who is president of the Regional Airline Association, Mr. Richard C. Cullerton, who is assistant vice president for engineering of the Metropolitan Washington Airports Authority, and Mr. Dwight W. Greenlee, who is director of airport administration for the Wichita Airport Authority.

I want to welcome all of you once again and thank you very much for being here with us. Because this is a joint committee hearing, we do have to swear in the witnesses which we ordinarily don't do in our committee, but I'll ask each of the four witnesses to please stand and raise your right hands and be sworn.

[Witnesses sworn.]

Mr. DUNCAN. Thank you very much. We always proceed in the order the witnesses are listed in the call of the hearing. That means that Ms. Hallett, we'll start with you. Thank you very much for being here with us.

TESTIMONY OF CAROL B. HALLETT, PRESIDENT AND CEO, AIR TRANSPORT ASSOCIATION OF AMERICA; WALTER S. COLEMAN, PRESIDENT, REGIONAL AIRLINE ASSOCIATION; RICHARD C. CULLERTON, ASSISTANT VICE PRESIDENT FOR ENGINEERING, METROPOLITAN WASHINGTON AIRPORTS AUTHORITY; AND DWIGHT W. GREENLEE, DIRECTOR OF AIRPORT ADMINISTRATION, WICHITA AIRPORT AUTHORITY

Ms. HALLETT. Thank you, Chairman Duncan and Chairman Horn and Mr. Oberstar. It is a pleasure to be here with you today. I am Carol Hallett, the president and CEO of the Air Transport Association, and would ask that my remarks be made a part of the formal record.

Mr. DUNCAN. Your remarks will be made a part of the record.

Ms. HALLETT. Thank you. I am pleased to say that the aviation system will be ready and we will operate safely on January 1 of the year 2000 and beyond. Individually, each ATA airline is preparing for Y2K with internal systems that will be ready mid-1999. ATA has developed a program for airport operators and critical airline suppliers to gather information for our members and to make decisions on services needed for safe operation.

Through ATA, as well as the international ATA and the Canadian ATA, airlines have developed a program to identify the Y2K status of the 185 air traffic providers who are on a worldwide basis going to be obviously important to all of us. That is in addition to hundreds of international airports. The data that we collect will reside in an internet data base for the use of some 300 airlines and airports so as to assure safe flight on January 1, 2000.

The ATA program is in three elements. In this regard, we are making an assessment of the four U.S. Government agencies having an impact on our airlines, Customs, Immigration, APHIS, as well as the National Weather Service to ensure uninterrupted service on that date. All four agencies have been most cooperative. We believe there will be a minimal of problems. We expect no major delays.

We are most concerned with the FAA. Our focus is of course on the air traffic control system. No plane moves on the ground or in the air without FAA approval. That is today, that is tomorrow, that's on January 1, 2000. We feel confident in saying that the FAA has the Y2K problem under control and will be ready, and we have confidence in their plan and their management as expressed today by many of you about both Administrator Garvey and Ray Long. We believe they are in complete control of the program.

The FAA has been honest, open, and candid with us. We have validated for ourselves the FAA's work on the Host computer. We agree that the FAA will meet tomorrow's deadline on their Y2K renovation work. We will nevertheless have contingency plans in the event of any problems.

Airports are a major focus for us because airports and airlines operate many systems that must be evaluated for Y2K impacts. We are currently determining who has Y2K responsibility for the readiness of those systems. Incidently, we support the proposal by the FAA to free up AIP funds for fiscal year 1999 only for the airport Y2K programs. In the meantime, we urge Congress to be as forceful with the airports as you have been with the FAA in making Y2K their highest priority.

The ATA airline Y2K program includes visits to 156 airports for the inventory, plus we will distribute Y2K training kits that are very informative as well as comprehensive. Those will be distributed to over 2,500 airports worldwide, with some 600-plus going to airports in Canada and the United States. Suppliers are another key element. Our members identified to us over 5,000 critical commercial suppliers. We are carrying out with both mail, phone, and face-to-face interviews with them to obtain the necessary information we need. We have found them to be highly cooperative.

On the liability and anti-trust issue, the sharing of Y2K business data is difficult due to potential lawsuits. H.R. 4240, the Y2K Liability and Anti-Trust Reform Act, would allow for the free sharing and comparing of test data. We urge the passage of this very important legislation.

H.R. 4240 will also help the industry assure the insurance underwriters that airlines and airports will be ready. Current thinking by the underwriters is that Y2K is uninsurable. We are working with the insurers to make them aware of the true nature of the Y2K risks so that insurance remains in force.

In conclusion, Mr. Chairman, the airlines recognized the need to tell the public what the state of the industry will be on January 1, 2000. While we're not there yet, we can say with confidence it will be safe to fly on January 1, 2000. Our members will be prepared for the new millennium. Thank you.

Mr. DUNCAN. Well, thank you very much, Ms. Hallett. Those are good words to hear.

Mr. Coleman.

Mr. COLEMAN. Thank you, Mr. Chairman, and members of the committee. The Regional Airline Association appreciates the opportunity to be here today to describe the efforts of the Regional Airline Association. RAA members, which include airlines and suppliers, are participating in both individual and industry initiatives to address the issues associated with insuring that the technology dependent on software and microprocessors will function safely and efficiently in the year 2000. At the direction of the RAA board of directors, RAA staff has participated with the Federal Aviation Administration on ATC issues associated with Y2K. RAA has also been directly involved with the excellent efforts of the Air Transport Association on airport readiness. RAA members are working directly with their suppliers, with some assistance from RAA staff to confirm that their aircraft and support for the aircraft will operate safely in the year 2000.

RAA staff participated with FAA and other ATC users as we collectively examined the FAA air traffic control system components. As the committee knows, the three categories that were categorized are equipment which is critical to safety of flight, equipment contributing to the efficiency of flight, and all other systems. RAA agrees with and supports the FAA determinations on the allocation of the resources. RAA attends and participates in the quarterly FAA Industry Day and is prepared for increased involvement with the FAA if the status of issues requires additional attention. Last week at an RAA meeting on year 2000 issues, FAA representatives briefed our members airlines on the status of their ATC plan, which was very well received. RAA will work with FAA as necessary to assist in our mutual realization of a fully implemented Y2K program on June 30, 1999.

On airports, earlier this year the Air Transport Association invited RAA to participate with them in the development of materials to provide to airports which are served by RAA members, but not served by ATA member airlines. RAA and its members accepted this very generous offer as both ATA and RAA recognized that a coordinated effort to provide assistance and resources to many of these smaller airports would be a benefit to ATA and RAA, but mostly would benefit the air traveling public. We contributed in the development of the video contained in the tool kit that Ms. Hallett demonstrated. This will be distributed to several hundred airports in the country, including those that are served by RAA member airlines.

As a point of reference, there are 703 airports in the United States which received scheduled airline service. Out of those 703 airports, 514 are served exclusively by regional airlines. Within the 48 States, 289 airports are served exclusively by regional carriers. The ATA initiative to provide those resources to the smaller airports is extremely praiseworthy and important to the success of this element of the Y2K preparation. Our member airlines are in the process of being advised of the delivery of the ATA developed tool kit to the airports and are prepared to assist the airports in performing their assessment of their needs to prepare for Y2K.

Finally, aircraft and associated support equipment. RAA members have agreed that each individual supplier is responsible for advising its customers of the Y2K status of its products. These include aircraft, aircraft components, and support equipment, such as maintenance testing equipment, aircraft component tracking, systems for maintaining records for repairs and other maintenance and operations functions.

RAA staff is in the process of identifying a list to provide to members of suppliers which are providing other airlines with Y2K status assessments. The information RAA would provide to members would include the suppliers' Y2K contact and web site address, if available. This initiative is intended to expedite the communication between our members and the suppliers.

In summary, the commercial aviation industry, including airlines, airports and suppliers, recognize the crucial importance of proper preparation for the transition to the year 2000. RAA will communicate continuously with its members through meetings, mailings, and electronic communications to augment the resources of members to prepare our industry for the year 2000. We will work with FAA and with each other to ensure a safe, reliable, and efficient air transportation system through 1999 and into 2000. Thank you.

Mr. DUNCAN. Thank you very much, Mr. Coleman.

Mr. Cullerton.

Mr. CULLERTON. Good afternoon, Mr. Chairman, and members of the House Subcommittee on Aviation and Technology. Thank you for the opportunity to appear before you to inform you of the Metropolitan Washington Airports Authority's program to address the year 2000 problem.

The Airports Authority operates Ronald Reagan Washington National Airport and Washington Dulles International Airport. Together both airports moved over 30 million passengers in the past year. Clearly unresolved Y2K problems could have a major impact in this region, travel impact. For that reason, we have established a Y2K task force to identify and address and resolve any potential Y2K impacts. The task force has representatives from each of the relevant Airports Authority offices and is supported by our information technology consultant, CACI.

Since its inception 6 months ago, the task force has developed a plan of action, broken the problem into manageable areas, and made significant progress. We have implemented a remediation approach based on the GAO format that encompasses the five phases that Mr. Oberstar, you had alluded to earlier, awareness, assessment, renovation, validation, and implementation.

The awareness phase has essentially been completed. The assessment phase is underway, thanks in large part to a joint undertaking with the Air Transport Association that resulted in developing an airport functional area breakdown, and an initial inventory of systems that are potentially impacted by the Y2K problem. The renovation phase, the next phase in sequence, is underway with the upgrading of our organization's personal computers and will continue with software upgrading and embedded systems upgrading. Then the validation phase will test all modifications made to both software and hardware. Finally, the implementation phase will ensure that all systems and their dependencies work properly.

We have divided the Y2K world into four areas, each of which is being worked concurrently. Those four areas are personal computers, software, embedded systems, and external interfaces. There are approximately 796 personal computers within the Airports Authority. We have tested 784 of those and have determined that 98 percent are compliant. It is safe to say that in our PC area, this will not be a problem.

We have identified 296 Airports Authority software systems, these are non-embedded systems, of which 16 are considered critical. Most of our software systems are commercial, off-the-shelf products. We are contacting the developers of these products to determine if they are Y2K compliant. As of this month, we have received responses on 53 percent of our software systems. The responses indicate that about half were compliant and the majority of these will require an upgrade to a more current version. An initial software certification program is well underway and we will begin the process of renovating problem software.

Our embedded area involves 126 systems. These are systems that are most likely to impact the travelling public. They include such things as airfield lighting systems, heating, ventilating, and air conditioning systems, parking control systems, et cetera. Each embedded system is assigned a system owner, usually the person who is responsible for the operation and maintenance of the system. The system owner works closely with the Y2K task force and assists in preparing a renovation plan that lays out what has to be done to make that particular system Y2K compliant. We have currently assessed 89 systems and determined that 23 are critical. The highest risk systems will be scrutinized most closely and treated most urgently. Resources for system repair will be made accordingly.

The final area is that of external interfaces. These include providers of utilities such as electricity, gas, telecommunications and water. Other interfaces of course include the Federal Aviation Administration, airlines, fuel providers, the general aviation operators, and Metrorail. We have contacted each of these providers and will continue to coordinate to ensure that the interfaces between our organizations and theirs are compliant.

The Airports Authority began its Y2K effort in October 1997. Our goal is to complete the entire remediation program by August 1, 1999. This allows a 5 month period to handle any unforeseen problems. The Authority is currently budgeting $1.1 million in 1998 to cover systems upgrades and consultant support costs. The bulk of the remediation and testing will occur in 1999 and we are currently estimating a $6 million Y2K budget.

In summary, the Metropolitan Washington Airports Authority has recognized the problem, formed and trained the task force to address it, provided consultant support and established a strategy to concurrently work both hardware and software issues. We feel confident that we can resolve the critical system issues over the next 16 months. Our objective of course is to ensure that it is business as usual at National and Dulles Airports on Saturday, January 1, 2000.

I appreciate this opportunity to address the subcommittees, and will be pleased to answer any questions.

Mr. DUNCAN. Thank you very much, Mr. Cullerton.

Mr. Greenlee, over the years we have had many, many witnesses from all across the country and even other nations, but today you are the only non-local witness. We appreciate the fact that you have come all the way from Wichita to be with us today. We thank you for being here. You may begin your testimony.

Mr. GREENLEE. Thank you, Mr. Chairman. Mr. Chairman, distinguished members of the committees, I am pleased to appear before you today. Wichita Airport Authority started the process of developing a plan for the year 2000 in October 1996. The process was organized as follows: Policies and procedures were established, inventories were taken of systems, remediation plans and testing or process for that were established. Implementation and documentation is now in the process. Contingency plans have been made, and training is in the process at this point in time for those plans that require it. Insurance and legislative reviews have taken place and are continuing to take place.

In February 1998, the Wichita Airport Authority joined with the city of Wichita to share information and resources. This sharing process has proven cost effective, resulting in the WAA plan being an estimated 75 percent complete. Active sharing of information with other entities will assure the goal of having all airport systems fully compliant by June 1999.

A joint meeting of airport/airline organizations was held in Cincinnati, OH, for the purpose of sharing information. These informational and procedural meetings should be encouraged. Recently a web site has been established which provides Y2K status and identification of products and systems. The above activity can best be coordinated through organizations such as airport operators, ourselves, Airport Council International and North America, American Association of Airport Executives, the Federal Aviation Administration, Airline Transport Association, product manufacturers, and vendors, and not to forget consultants also.

Legislative and financial assistance is needed in attaining the goal of assuring airport business activities continue on interrupted through the year 2000 and beyond. Funding vehicles such as airport improvement programs and passenger facility charges are in place. However, the procurement process is slow. The funding and purchase of Y2K replacement and remedial systems needs to be expedited. It is our desire to avoid the necessity to fall back on insurance and legislative protections to preserve assets. The budget for Y2K activities at Wichita Mid-Continent Airport is now estimated to be $250,000. This is over and above an $800,000 expenditure for planned replacement of Legacy systems. Your assistance is needed to assure legislative and financial resources will be available as required. Thank you.

Mr. DUNCAN. Thank you very much, Mr. Greenlee.

I am going to go first for questions to Mr. Oberstar.

Mr. OBERSTAR. Thank you, Mr. Chairman. I want to thank all four of our panelists for very thoughtful and comprehensive presentation of the issues as it affects each of your areas. Ms. Hallett and Mr. Coleman have been before our committee many times. We always appreciate your contribution. Mr. Cullerton I know from the Washington Airports Authority, how diligent you have been in addressing these issues. I share in Chairman Duncan's welcome of Mr. Greenlee. It is always a delight to have people come from beyond the beltway, bring us the word from the heartland of America out there in Wichita and elsewhere.

Mr. Greenlee, I mentioned earlier the AAAE sent out to all of its members a survey of airports on the Y2K problem. Did you see that survey?

Mr. GREENLEE. Yes, sir. I believe I did.

Mr. OBERSTAR. Did you find it useful?

Mr. GREENLEE. Somewhat. We are inundated with questionnaires. AAAE is one of those organizations that we respond to on a regular and continuous basis. I think that those kinds of questionnaires are helpful. They do give us insight into areas we need to be looking into. We appreciate all the help we can get.

Mr. OBERSTAR. Did AAAE have, after the survey was completed, did they come back and help individual airports address the major problem areas identified in that survey?

Mr. GREENLEE. AAAE has a broadcast system via network and ANTN. Several of the results from the survey have been published and procedures for dealing with those have appeared on ANTN.

Mr. OBERSTAR. You cited utilities, security environment, and airfield related safety systems. Such areas as baggage control, airport access control systems, airport services such as elevators, escalators, moving sidewalks are also problem areas. Do you found Y2K problems in those areas?

Mr. GREENLEE. We have found certain Y2K problems in the area of security. We are moving to remediate those things at this point in time. Our elevator systems and our baggage claim systems are non-impacted by this type of problem.

Mr. OBERSTAR. Are those what Mr. Cullerton described as embedded systems?

Mr. CULLERTON. Yes, sir. Most certainly. That is the 126, all of those that you just mentioned are included in our embedded list. We are just beginning to get our hands around that. We did as a pilot, we looked at our airfield lighting system because clearly we recognize that as one of the most critical systems on the airport. We did find that the 486 computers that the operations and maintenance folks used at both Dulles and National were not Y2K compliant. We have a procurement in now to purchase upgraded computers to drive those systems.

Mr. OBERSTAR. Do you have to replace those systems?

Mr. CULLERTON. We are going to replace those. Yes, sir. It is not a very big expense, frankly. It is three units at Dulles and three units at National. I think we are going to get a lower grade. We don't need to upgrade to the Authority standard computer because it has such a limited use. We expect those to be at most in the $10,000 to $15,000 range total for those six units.

Mr. OBERSTAR. What about security services where you have control to the air side of airports? Do either of you have a comment on problems in that arena?

Mr. GREENLEE. Our primary problem in that area is in the identification system, the badging process that takes place within our entire network security systems. Like I say, the manufacturer of that original product is working currently with our people to assure that we will be up and ready to run in the year 2000.

Mr. OBERSTAR. I was very pleased to hear Ms. Hallett and Mr. Coleman both support your request for use of AIP funds on a one-shot basis, which I would concur with, to finance smaller airports compliance requirements. You certainly don't have the resources that a major airport would have in dealing with that problem. I hope we can work something out in that arena.

Ms. Hallett, it's so good to hear praise for FAA when so many times you are at opposite ends of issues. But you give them a clean bill of health for working cooperatively. I want to commend you and the leadership that you have taken within the Air Transport Association, getting the members to face up to their responsibilities and their problems. If I recall rightly, Delta has hired or assembled within its organization over 400 people to address their Y2K problem and got started on it in a very early stage. Boeing has recognized that they have problems and have attempted to assemble specialists within the manufacturing arena to address the issue. You have been the spark and have moved out quickly to address that matter.

As a former Customs administrator, how would you rate the compliance of your former agency?

Ms. HALLETT. Well, Mr. Oberstar, we really have been very pleased with the work being done by all of the agencies that I mentioned. Obviously the National Weather Service today I think is exemplary in what they have done, but Customs is of course responsible, along with APHIS and Immigration, for making sure that the processing of goods as well as passengers will be done expeditiously. We have had excellent cooperation from them. They are also focusing very seriously on the issue. We do not anticipate problems at this time.

Mr. OBERSTAR. Customs is very important. They generate $9 to $10 billion in revenue for the Federal Government every year.

Ms. HALLETT. About $20 billion.

Mr. OBERSTAR. Is it that much now?

Ms. HALLETT. Yes.

Mr. OBERSTAR. Oh goodness. I'm behind the times.

Ms. HALLETT. It was actually $20 billion when I was there, so it should be more now.

Mr. OBERSTAR. I'm behind the times on that figure. But it's impressive.

Finally, Walt, when you cite 514 airports served exclusively by regional carriers, that is a very powerful economic sector. We are glad that you are on top of the issue with your member carriers.

Mr. COLEMAN. Thank you. Well, a lot of those of course are in Alaska, but 289 in the lower 48. It really means that three-fifths of the communities in the lower 48 are dependent on regional carriers to get into the air transportation system. So it is an important element.

Mr. OBERSTAR. Ask those who were affected by the Northwest Airlines.

Mr. COLEMAN. We didn't have to ask them.

Mr. OBERSTAR. They were screaming?

Mr. COLEMAN. Yes.

Mr. OBERSTAR. So Y2K may be a problem, but a strike is a whole lot bigger problem.

Thank you very much. I appreciate the presentation by all of you.

Mr. DUNCAN. Thank you very much.

Chairman Horn.

Mr. HORN. Thank you very much, Mr. Chairman. I have enjoyed reading the testimony of all of you and hearing it as well. I thank you for coming.

I am going to start with Ms. Hallett. This will be a background point, and then I have about four questions to ask, so you know where we are going.

You stated in your testimony that 81 airports you have reviewed, only 20 are on schedule according to their Y2K plans; 61 airports are behind schedule or have no plan at all. Obviously that's a disturbing comment when we have not too much time to go.

So my first question is, have you or your staff noticed common characteristics between airports that are on target versus the ones that do not have a plan at all?

Ms. HALLETT. Well, Mr. Chairman, one thing that we have discovered is that the amount of support received not only from the Congress in terms of encouraging the work to be done has had a direct impact on airports that might not otherwise have focused on Y2K. But I have to tell you that overall, not only here in the United States but around the world, there are some airports that do not feel the problem is as important as others do. That is one of the reasons I made the comment in my remarks today that we hope that the Congress and these committees specifically will emphasize in every possible way the importance of getting this job done. We think that hearing from you as well as the FAA is going to have the most important impact on getting everyone ready by the year 2000.

Mr. HORN. In terms of those common characteristics, let me give you an example. Airports in particular regions-are they farther along in that region than are airports in another region? Is this a regional thing where they don't really comply, and I don't want to say more sophisticated regions, but I don't know any other word for it.

Ms. HALLETT. Yes. In actuality, a good example, I might have had more information for you today on the New Orleans/Mobile area. They were scheduled for our first visit today and yesterday. Last week we were to go to Key West. We got there and we got out just as they were nailing up the boards on the windows of the airport. They were doing quite well. So there is no consistency as to which ones are on schedule. As my testimony points out, of the 81, 20 of those airports are on schedule; 61 as you mentioned, are behind. But they are all over the map. Some are big, some are small. There is no consistency, to answer your question.

Mr. HORN. You might want to file just a brief letter on what happened at New Orleans today.

Ms. HALLETT. We are still waiting.

Mr. HORN. I think, Mr. Chairman, if we can just have that letter in the record here, this will be fine. For the airports that are behind schedule, what are some of the problems or challenges that they are facing that keep them from meeting the deadlines? What do you see there?

Ms. HALLETT. Well, some of it is motivation. Some of it is financial. It's one of the reasons that we have publicly supported the use of AIP money only in 1999 for this purpose, but we would also support the streamlining that is necessary to get this going. So those are probably the two most significant reasons for slowness. Again, we have gone to some areas and I don't mean to sound corny, but some are embarrassed to say that they have not gotten their plan put together. They have asked us to come back later. We have had some cancellations literally the day before or the week before we were to reach that particular airport, simply because they were not ready. They did not want us to see how far behind they were. In some instances, we have now been to those airports and were pleased with their progress.

So it is a matter of a comfort level with some, just as much as it would be with others making sure that they have the financial support to get the job done.

Mr. HORN. As I understand the answer the administrator gave when I asked Mr. Greenlee these questions was a positive one. That she did want to streamline the process and speed it up. So we didn't get back to the insurance issue. Does ATA have any feelings on the insurance situation and how that's coming, and have they played in a role in this?

Ms. HALLETT. Well, we have had meetings with the insurance industry. As I mentioned, H.R. 4240 is going to be very important to the overall insurance perspective because with that legislation, they will have a far higher level of security as to knowing that the work will be done. In our case, I think it is going to be important for the Congress as well as ourselves to continue to push in that area as well.

But without that legislation, I think we are going to be in much greater danger of not getting everything we need from them, particularly informationally.

Mr. HORN. You mentioned that ATA is visiting some of these airports. What other services are you providing to the struggling ones that really haven't quite conformed yet?

Ms. HALLETT. Well, first of all, we do not provide a service. We are, however, providing as I pointed out, not only the kit, but we are also going through a very specific list of things that they need to do. We have not only the training modules that they will be able to utilize that are in the kit. We are certainly sharing all of the data that we are gathering. That is being shared with every airport that we are participating with.

I might point out that in the United States, of those 5,000 public use airports, there are some 700 commercial service airports. We will be either visiting or in touch with each one of those 700 commercial service airports. They will all receive the kit. Of course many others besides those 700 will receive the kits. But every single airport that is served by a major national or a regional certificated airline will be visited, either by the regional airlines or ourselves and our teams or they will receive the questionnaires. All of that data can and will make them completely whole and they will be ready for the year 2000 if they have followed through on meeting all of the requirements that we have provided for them.

Mr. HORN. Is there anything that the FAA can do to ensure that the airports as well as the airlines and suppliers are compliant?

Ms. HALLETT. Absolutely, Chairman Horn. The FAA not only can bring great pressure, but they also have the ability to certify or decertify an airport as to whether or not they will be able to receive and have planes coming and going on not only the first of January, but before and after. Just as is true with us.

I mentioned this morning that we cannot move a plane on the ground or in the air without it being certified as well as approved by Federal Government regulation under the FAA. The same is true of airports. We really fall under not only very strict and strenuous rules and regulations, but in order to continue to operate, we must meet those requirements. That is why not only the administrator, but we agree. The administrator does not have to send a team to certify every airplane or every airport because they are doing it on a regular basis, on spot inspections as well as other kinds of inspections that are regular and they are expected on a regular basis. We just have to make sure that this all continues.

Mr. HORN. Mr. Chairman, I have two or three remaining questions, but I know you might well want to get yours in now. Whatever you would like.

Mr. DUNCAN. I have got some questions I want to ask, but you go ahead.

Mr. HORN.The embedded chip that was brought up on all panels, and I am curious how the airports and airlines, but particularly the airports now are handling it. What we learned when we were having a hearing in Cleveland in the recess was that the medical community is doing a pretty good job of one, looking at what equipment they have that have embedded chips, going to the manufacturer to see what can be done about, and then putting that base data on a common computer web site that hospitals all over America could tap into. I just wondered if the airports are doing anything like that so not every airport has to reinvent the wheel.

If you have got a certain type of light on the field, I think that was mentioned, and different parking, security things, can we get one answer and everybody access that rather than having hundreds of airports have to go back to the manufacturers. Has anything like that been set up? I'll yield to any of you.

Mr. CULLERTON. One thing that we have just done is we have brought on a firm called CTA to be a subconsultant to CACI, whom we have had with us for a number of years. They have a remediation facility out in California where they have apparently over the last year or so developed a number of contracts with a wide variety of airports. So they have begun to build a data base. This is just one firm's data base, but it has been fairly widespread in lots of different systems, landside systems, terminal systems, airfield systems, et cetera. So they are helping us now out of Dulles. They will shift to National soon to actually evaluate these systems, identify all of the microprocessors in a particular system. Then once we have accomplished all of that, and we hope to do that in the next 30 days, we will be able to query now that we have them on as subcontractors, their data base.

That is not a complete answer to your question, but that is what one firm has been doing. I think that will be very useful to us. That will then prevent us or at least allow us not to have to go out to maybe 126 vendors and find out what they are doing, as maybe all of the other 700 airports might be doing at the same time. As you heard earlier, we are all being inundated with lots of surveys. Somebody is not going to get the answer if we do it that way. So we are using that resource right now. That is our intention.

Mr. HORN. Now, Mr. Cullerton, as I heard your testimony, you would complete remediation by August 1999. Is that accurate?

Mr. CULLERTON. Yes, sir.

Mr. HORN. Do you plan to do an operational test as opposed to a laboratory test to make sure that this works right?

Mr. CULLERTON. On critical systems we do. We plan to do that.

Mr. HORN. So when are those tests likely to be performed if you are going to make it by August 1999?

Mr. CULLERTON. We haven't yet scheduled the test, Mr. Horn. I could get back to you on that if that's—

Mr. HORN. Just put it in the record if you'd like. We're just curious to the time that it takes.

Mr. CULLERTON. The testing phase is what we also call the validation phase under the GAO format. That phase is beginning, it's in my paper that was submitted here, I believe it begins, if you'll allow me just a moment I can tell you exactly. We are looking at it beginning in the late October/November timeframe and extending through July.

Mr. HORN. That's late October in 1998 and extending it to July 1999?

Mr. CULLERTON. Of 1999. Yes, sir.

Mr. HORN. OK. The reason I ask that is you'll recall that the FAA had a little problem with radar about a year ago, thought they had it all fixed up in the laboratory. It wasn't in an operational context. When they went back to the towers or whatever, it just didn't work. Then they had to face up to why isn't it working. So you are saying you think that you have that pretty much under control then with the type of testing you plan.

Mr. CULLERTON. We do. We think that that is a valid approach in our world.

Mr. HORN. Good. Well, I thank you and I thank the chairman for the extra time.

Mr. DUNCAN. Thank you, Mr. Horn. I don't think there is anybody in the Congress who has done more to call the attention of the American people to the Y2K problem than you. I know on our August recess you held hearings I think in Indianapolis and several other places. I appreciate the work that you have done. I have discussed it with you a few times. I, for some strange reason, have been fascinated by this problem and still am, but I guess maybe it's my naivete or something, but I feel like we're going to come up with a solution for most of these problems, but it is something that we need to talk about and work on.

Ms. Hallett, the part of your testimony that jumped out at me was also what Mr. Horn was talking about. The fact that you said 35 percent of these airports that you surveyed had no Y2K plan or program set up. I would assume those 81 airports were mostly larger type airports? Were they? And do those airports, are they now getting programs in place? You mean they had done no work whatsoever? Is that what you mean?

Ms. HALLETT. That is correct, Mr. Chairman. Twenty eight airports, in other words, 35 percent of the 81 have indicated that they have no plan, no formal plan at this time. I think you have probably noticed in the back of my testimony, not only do we have a copy of all of the information that we are asking for and who is responsible for it, we also go through all of the airports that will be contacted.

Specifically to answer your question, it has not been just the large airports. This is across the board and will continue to be. That is one of the reasons that I emphasize again, it is so important for the Congress as well as the FAA to be as forceful as possible in making sure that not only funding is available, but also that the motivation is there for the airports.

You know, we can fly into an airport in VFR weather without necessarily having the ATC program completely operational with a tower operating on the field in some cases. It could be with a regional airline, it could be with another airline as long as they have been able to communicate by radio. However, that is if it is perfect conditions, it's VFR. We can also go into an airport if there is no fuel if we are able to move a tanker to that airport and have the fuel there. But we have to have airports with a plan certified that those functional things will be operating.

Now some of the things on an airport are owned and operated by the airlines. It could be the jetway, for an example. On an airport it may be that in one case the airlines owns and operates a particular piece of equipment, in another airport it may be owned and operated by the airport. All of that will be determined not only in our assessment, but we will then be prepared to notify our members and all of those who are participating which airports will be ready, what is not going to be ready on that airport, so then the airline will be able to make the assessment as to whether or not it is safe to fly into that airport. That is why it is so essential that they really get with it.

Mr. DUNCAN. I think I heard you or somebody say that you sent those kits to 703 airports or something like that?

Ms. HALLETT. Well, no. It will go to far more than that. Actually it is going to some 2,500, but 600 in the United States and Canada alone.

Mr. DUNCAN. I see. When? You say it will be going to 2,500?

Ms. HALLETT. They have just been completed. They are on their way literally as we speak.

Mr. DUNCAN. I was going to ask.

Ms. HALLETT. However, that is not necessary for the airports that we are already communicating with. They are already receiving the questionnaires. They already have the data in advance. This is what will help them.

Mr. DUNCAN. What is in the kit there? There is a video?

Ms. HALLETT. Sure. Not only is there a video, but we also have in here a CD-Rom. Here we go. The CD-Rom is one very important part of this because that will give them all of the specifics on exactly what they need to do. It is all computer-based training that's on the CD-Rom. Then we have the video that both Mr. Coleman and I, as well as Mr. Plaven of ACI, the president of ACI, participated in. But it also goes through a great deal of instruction as to how to come up with the inventory information that is needed, the inventory workbook which is in here, and this is really—there is nothing that an airport will be missing in this inventory book. The glossary has both the worksheets and it has everything that an airport needs to complete their inventory, to be able to report back to us as well as the FAA and to every airline what is done, what needs to be done. It is really an incredible tool that has been put together for these airports.

Mr. DUNCAN. I am glad that—I mean so many of the articles you read about this problem give these warnings or these dire predications, or as Mr. Kucinich called it, speculation. But I have noticed that a lot of these articles don't tell you what to do. I am pleased that most of what you are sending seems to be information about what needs to be done rather than just a warning that this is a terrible problem, you know, and leaving it up to individual airports to determine what to do.

And you are going to follow up these kits?

Ms. HALLETT. Oh absolutely. We'll be talking to all of these airports that receive the kits. Mr. Chairman, I have to point out, this is really a cooperative effort. While the ATA was really in the leadership role of getting this going both here in the United States as well as internationally, this is not something that anyone is taking credit for. We all take credit if we get it done, but we all are responsible if we don't get it done.

The one thing that the airline industry can guarantee, they do not fly if it is not safe. The safety of our passengers and our crews are our No. 1 priority. That is why we are going to make sure that every airport we fly to is able to meet the safety level.

Mr. DUNCAN. Well, thank you very much. I think that's a great thing that you are doing.

Mr. Coleman, I understand that your association has been working with the ATA on this. Do you know, are there any airlines that aren't working on this Y2K problem right now or are not taking it seriously? I mean I assume that you can assure us that even the smallest airlines are doing everything they can to solve the problem as it relates to them.

Mr. COLEMAN. I think they all have great respect for what the ramifications would be if they weren't in compliance. I don't know what every airline's plan is. Certainly the ones that are wholly owned, there are about 10 wholly owned by the majors, have that resource for them. We had a meeting the other day, we had about 20 airlines there. I think that the report of that meeting will help some of the others understand the nature and scope of the program.

Some of the very small airlines, just like the small airports, they have fewer issues, they may be just as crucial, but they have fewer systems they have to be concerned with. But I am confident, particularly because of the press that the FAA is getting about their attention to the ATC issues, that there is a continuing growing awareness of each person in the system has to work toward their own objective. I think we'll get where we will have to be.

Mr. DUNCAN. Mr. Cullerton, you said that almost all of your PCs have checked out ok, but you said that was it 53 percent of where you have an embedded chip problem or situation, is that?

Mr. CULLERTON. Let me correct that, Mr. Chairman. Fifty three percent of our non-embedded software. We have software that are—

Mr. DUNCAN. Fifty three percent of the non-embedded?

Mr. CULLERTON. Right. Our financial system, our personnel system, our retirement systems, those sorts of things that are in our corporate headquarters, if you will.

Mr. DUNCAN. So that was the non-embedded.

Mr. CULLERTON. Yes, sir. Non-embedded. And what we found was 53 percent of those, I think it's 158 to be exact that we have gotten responses back, half of those, 79 of those were non-compliant. So we are going to need to upgrade a significant number of those non-compliant systems, either with new purchases, software, that sort of approach.

Mr. DUNCAN. How are you affected by the embedded chips?

Mr. CULLERTON. The embedded chips, I must be honest, lags behind. We have got a lot more progress in testing our PCs which were sitting on top of your desk and easy to access and easy to test and our software systems which were easy to get our hands around, our non-embedded software.

The embedded software systems are much more difficult. That's why we have a team out at Dulles right now, going through every building, every machine room with every building, trying to find every microprocessor that belongs to a particular system and then categorizing it. Once we have completed that survey, then we are going to try to assess this assessment center or contact this assessment center that CTA has to determine whether those units are compliant or not.

What I can tell you is that of the 126 of those different systems, ranging across the board, elevator, escalator, we have even included our mobile lounges, our plane-mates that move you from the terminal out to the concourses, our crash fire rescue equipment, our snow removal equipment. We have gone that far that we have assessed 89 of those. We found 23 of those to be critical. So those are going to pop to the top of our list and those are the ones we are going to be working over the next few months.

Mr. DUNCAN. You say 23 of those are critical.

Mr. CULLERTON. Yes, sir.

Mr. DUNCAN. What is the status of those 23 most critical at this point? I mean to a non-technical person like me, there is a lot of this that I don't understand. I am wondering can you describe for me in layman's terms how big a task this is or how difficult this is and what all you have to do?

Mr. CULLERTON. The way this airport authority, owning the two airports, has attacked it is to—we have 12 vice presidential areas within our organization. Each vice president was tasked by our chief operating officer, Mr. James Bennett, to appoint a Y2K coordinator that formed an ad hoc task force that he has appointed me to be in charge of. So I have a person responsible for each of the 12 areas.

Under them, and particularly the people that are responsible for the National Airport operations, the Dulles Airport operation and our Office of Public Safety, which houses all of our police, fire resources, they have formed an organization that support them. Ultimately, it gets down to the foreman or the journeyman who might be responsible for the heating, ventilating and air conditioning control found in the boiler chiller plant at National Airport. He then becomes a part of our team and becomes what we call a system owner. The task force supported by the CACI folks that are behind me will then be working with him.

We have developed a questionnaire. We have gotten 89 of those questionnaires back that ask for a myriad of information about that system, so that we can then put that into a data base and be able to track and identify all the components of that system and ultimately after we have queried the vendor or used the remediation center that CTA has out in California, make an up or down determination as to whether that system is compliant or not. If we do get a determination that it is compliant but it's a critical system, we're still going to test it because it is important enough to us to do that. So we are going to develop, we are going to apply resources to that testing.

Mr. DUNCAN. So do you feel pretty good about where you are now at this stage?

Mr. CULLERTON. If you had asked me that question 4 months ago, I would have said absolutely not. Today we feel very good. I think we have got our hands around it. We have broken it up into those four pieces, the PC piece, the non-embedded software piece, the embedded software piece, and the external interface, and we're working those four concurrently. If we can solve each of those subareas as we march along here into 1999, I think we will have the two airport systems will function as we expect them to function on January 1.

Mr. DUNCAN. The biggest problem seems to be that from what I have heard here today and from what I have read is that even if a company does everything within its power, it's still got the problem and an even bigger problem of making sure that all of the suppliers and vendors—

Mr. CULLERTON. That is absolutely true.

Mr. DUNCAN. Because even the smallest business deals with so many different—

Mr. CULLERTON. A class example is if we do everything right and the airlines do everything right and FAA does everything right, but if Pepco has a power outage, we buy all of our commercial power for both airports from Pepco. Now we have stand-alone emergency generators that can get us by for hours and in some cases maybe days at a diminished level of service, but that can't go on for a very long time.

Mr. DUNCAN. How long could it go on? I mean I'll tell you, that seems to me to be a pretty big concern about the power and the utilities.

Mr. CULLERTON. At National, because as you are well aware I'm sure, we have upgraded and we have the new terminal there, one of the components of the Capitol Development Program was to include an emergency generation capability, so that we can provide about 80 percent of what we have for an extended period of time at National. We don't have that same opportunity at Dulles. We have two 550 kilowatt white generators which we are having our program to upgrade to double their capacity eventually, but that won't be on-line by the time the Y2K problems hits us. That system will basically only handle what we call the essential load, basically the airfield lighting system, some interior lighting within the building so that you could exit and enter appropriately. But that would be a very diminished level of service if we got into that situation.

Mr. DUNCAN. What about you, Mr. Greenlee? What about Wichita? What if the power went out for a few weeks, let's say?

Mr. GREENLEE. We are dependent upon in our terminal building area we are dependent upon two gas fired generators. We are in the process right now of upgrading those generators. In our airfield system, likewise, we have two generators, one that could run the airfield at approximately 80 percent capacity as far as lighting is concerned indefinitely. It's gas powered. The other one, which is a diesel powered generator, can also run the airfield at approximately 70 percent capacity. So we are dependent upon those. Those are some of our mission-critical items that we have checked and rechecked and continue to check as far as embedded chips.

The testing has to be continuous as people come in and do maintenance on these items and those types of things. We have to go back and make sure that what they replaced are repaired the item with is compliant with the year 2000 procedures. Of course we have tried to tie all of our vendors to contract clauses that simply say that they will not do anything that isn't year 2000, but still it doesn't relieve us from the obligation of making sure that what they are doing is compliant. It is a continuous effort.

Mr. DUNCAN. I mentioned in my opening statement, I am pretty sure it was in U.S. News and World Report that I read that the Federal Reserve system was going to print $50 billion extra over what they usually print because they feel so many people are going to go down 2 or 3 months in advance and start withdrawing some extra cash to tie them over and all of that. Are you going to take some unusual or extra precautions just prior to the year 2000 arriving or is that something that you will have to decide at a later point as we get closer to it?

Mr. GREENLEE. I think in our contingency plans in almost every area, security as well as making sure the lights are working or at least working to the extent that is necessary to provide for the safety and welfare of our users. Those contingency plans, say if that doesn't work, what are we going to do, and who do we have to rely on to do those things, and what level of training do they need. I mentioned earlier that we are in the process right now of actually training people.

Approximately 15 years ago, we had a tragedy in that our air conditioning for our terminal building, all systems went down on us. It was necessary to start writing tickets, for the airlines to start writing tickets, because their computers didn't work, by hand. They actually had to call back retired individuals who still knew how to do that type of thing and find forms and pieces of paper for them to use to do it. Those are the kinds of contingency planning operations that we are undertaking to make sure that things work.

Mr. DUNCAN. How are you doing out there in Wichita? How many passengers do you have each year now?

Mr. GREENLEE. We are right at 715,000 in-plane passengers per year. So we are a small hub airport.

Mr. DUNCAN. Are you having trouble getting service in there? We have gotten into that several times on the problems of the smaller and medium-sized cities of getting service.

Mr. GREENLEE. We are very lucky in regards that we have a significant number of airlines. Today I think it's maybe 11 airlines serve our community.

Mr. DUNCAN. That's great.

Mr. GREENLEE. It's the price we have to pay that we're concerned with. So we are very lucky in that we have service. We have an adequate amount of service. But we do have to pay an extraordinary large price tag to fly from here to Wichita and back.

Ms. HALLETT. Of course, Mr. Chairman—

Mr. DUNCAN. Yes, go ahead.

Ms. HALLETT. I was just going to say, Mr. Chairman, if they bought a 21-day or a 7-day ticket, it would be very inexpensive. It's all those businessmen and women who need to buy their tickets the day before they fly that do pay the premium because we have to save so many seats just for the last minute purchasers.

But, Mr. Chairman, I wanted to just not only comment on the unbelievable work that MWAA has done. We did our two tests as we launched this program at National and Dulles. It was one of the best experiences we have ever had because not only were they so cooperative, but we were able to work together to develop this program. When you are starting something new, you need a guinea pig. This is one of those exceptional cases where there were really very few problems all in all. We learned together and we were able to put together not only our inventory, but everything else that's going out into the field based on the two tests that we did at these airports. So I think that is important.

But I also just wanted to mention with respect to the issue of the embedded chips. We are working with suppliers to identify not only the embedded chips at airports, but also in the airline system. A good example, we have not only 5,000 suppliers on our list with whom we are working, but we have meetings on October 15th with the communications industry to determine just where we are going from here, how we will do our end-to-end testing. So while there may be something that we have overlooked, we do not believe that is the case. It is just a matter of everyone being ready on time. Our airlines expect to be ready, completely ready, with testing done by mid-1999.

Mr. DUNCAN. Well, that's good to hear. I'll tell you what, this morning I spoke to an NTSB symposium and I didn't have any breakfast. I haven't had any lunch. I should do that more often, but I am going to go get me something real fattening to eat.

Before I go, I am going to let Mr. Horn, I think has one more question.

Mr. HORN. I have been the same way in the food department.

Well, one, I congratulate you because you put your finger on one of the key problems nationally, which is the power supply. We have tried to get answers out of some people. They are a little nervous. Their lawyers tell them don't say anything. I hope this legislation that you and I and everybody else are talking about will go through and solve some of that, free up some voices.

But what I am fascinated by is the lighting at the airports. Now I happen to go almost every week between Los Angeles, LAX and Dulles International Airport. When you tell me that they really don't have any generators out there, I am reminded that when I first went to China in 1981, the lights on the airfield went on when you were about 1,000 feet from touchdown, because hopefully you were at the right airport, that was No. 1. You weren't quite sure where you brought it in. But my query is, could we bring in people by instrument landing and get by on that if you didn't have any lights on the field? Could we land them by instruments?

Mr. CULLERTON. No.

Mr. COLEMAN. The Federal aviation regulations require that you have lighting for your cues. So it is part of a precision landing system.

Mr. CULLERTON. That's correct. To make sure it's clear, we do have emergency generators at both airports that will handle the airfield lighting system. The difference is that at National the emergency system will handle a lot more. At Dulles it will handle a little less more. But that is a critical part of what we determine to be the essential load. So the two generators that we have in our utility building at Dulles, and we test this usually on a monthly basis, we drop the two incoming feeds and allow it to spool up and take the essential lighting load just to test it, usually at a midnight hour. It works. So you should not have to worry about that issue at our two airports.

Mr. HORN. OK. I feel a little bit better. I just wondered on that because I know planes have landed on instruments and been perfect landing, but I realize there's a few other things.

Mr. CULLERTON. It is not in accordance with regulations. Under maybe emergency conditions you can do that if there is a moon condition out where you have a lot of ambient light that you can see what you are doing, I suppose you could do that, but it's not in accordance with the normal regulations.

Mr. Chairman, I would like to say that thanks to Ms. Hallett and her program manager, Tom Brown, they really kicked us off into this program back in I think the January/February timeframe, and provided sort of the framework for our two airports to look at this problem. So we are very appreciative of that effort. I know that's been exported to the top 156 airports in the country. So that was a very good move on their part.

Mr. HORN. Any time you want me to read the staff into the record—we have a tradition in the Government Management, Information, and Technology Subcommittee that we recognize the staff. So we have tried to put it all together here, those that have been involved. We'll start with my own subcommittee. J. Russell George, staff director and chief counsel; Matthew Ebert, clerk; Megen Davis, who is right behind me, is a GAO detailee and professional staff member on loan, so we get all of their knowledge too. And Mason Alinger, our staff assistant for the administrative side of the subcommittee.

With the minority, we have Brian Cohen, professional staff member for the Democratic minority on the committee. We have Jean Gosa, who is minority clerk. Our faithful court reporter, I might mention now if she hasn't just given up, and that's Sarah Swanson. This has been a long hearing, Sarah. Thank you for staying through it.

Jimmy Miller on Transportation, director of Transportation. Donna McLean, right next to the chairman, who is counsel and professional staff member. Then we have Adam Tsao, Mary Beth Will, Tricia Loveland, John Glaser, Keven Sard, Cheryl McCullough, all professional staff members for the Committee on Transportation. And then Jeff Grove and Mike Bell and Ben Wu, all professional staff and counsel for the Subcommittee on Technology of the House Committee on Science.

So we thank you all for all you have done to make this a successful hearing.

Mr. DUNCAN. Well, thank you very much, Mr. Horn. As that list points out, a lot of people have to be involved to have a successful hearing. My dad said many years ago, he said, everything looks easy from a distance. That is really the truth on most things.

So we thank you very much for being with us. You have been an outstanding panel. That will conclude this hearing.

[Whereupon, at 1:37 p.m., the committees were adjourned, subject to the call of the Chair.]

Statement of Congressman William F. Clinger, Jr.
former Chairman, House Investigations and Oversight Committee
on Aviation Industry's Year 2000 Program
before the House Y2K Task Force
September 29, 1998, 9:30 am
Transportation and Infrastructure Committee Room, Rayburn HOB

Mr. Chairman, thank you for inviting me to appear before the joint hearing of three House committees in the form of the Y2K Task Force.

As the former chairman of the Government Reform and Oversight Committee and a former member of the Transportation and Infrastructure Committee, I feel at home on the first floor of the Rayburn House Office Building. I spent my entire Congressional career --- nine terms --- in these surroundings and its good to be back. Additionally, I spent many years as a member of the Aviation Subcommittee and --- when the Republicans were in the minority --- as its Ranking Member.

Today, however, I return as a private citizen and as a board member of the Aviation Safety Alliance which was organized by the aviation industry through its trade association as a non-profit group consisting of aviation professionals and unaffiliated, but hopefully knowledgeable, individuals such as myself. ASA is dedicated to advancing aviation safety and public awareness of safety issues to produce a stronger, safer aviation system. Of the many critical issues before the aviation industry, and therefore the American travelling public, none has more far-reaching implications than those associated with the Year 2000 problem.

Recognizing the critical nature of the Y2K problem -- as well as the interdependency and commonality among airlines, government agencies, airports, suppliers and affiliated aviation organizations -- the aviation industry established a collaborative program for assessing preparedness, completing necessary remediation, and ensuring the industry will be Y2K compliant and safely operational by the Year 2000.

While recognizing that much remains to be done, I am pleased to have this opportunity to appear before the Task Force to applaud the aviation industry's significant progress and success in moving toward that goal. That success, in no small part, is the result of the outstanding leadership that Administrator Garvey has brought to the FAA's Y2K program. Under her direction, and with a commitment to open, honest communication, the FAA has accelerated its testing and remediation programs and made remarkable progress in moving hundreds of mission-critical systems toward Y2K compliance. Among these systems, the Host computer, which supports controller displays at the nations 20 en route centers, underwent exhaustive Y2K testing and will be fully functional on January 1, 2000. Current estimates suggest that the FAA will indeed reach their goal of 99% compliance by September 1999.

Equally admirable, I think, is the success of the airline industry's Y2K Program in working with suppliers, airports, critical government agencies to identify, and when necessary, encourage appropriate solutions. In 1997 the airline's trade association, the Air Transport Association, established a dedicated Y2K program. The purpose of this program was to support a comprehensive method to ensure air travelers and shippers that their access to air transportation will be safely maintained through all of the important Y2K deadlines. Indeed, the president of ATA, Carol Hallett, will be before this body later today to discuss the airline industry's Y2K efforts.

I was talking with some of my former colleagues about the Y2K issue earlier this year and was amazed to learn that a significant number of federal agencies as well as private industries have been perilously slow to react to challenges posed by the Y2K problem.

Thankfully, however, the safety of our air transport system will be assured. Under the leadership of dedicated aviation professionals in government and the private sector, aircraft will fly safely throughout 1999, the year 2000 and beyond. Indeed, commercial aviation can be held up as an exemplar of how Y2K problems should be addressed.

Before others report to you on specific Y2K program progress, I would like to take this opportunity to emphasize the importance that information sharing, cooperation and communication have played in helping the aviation industry to approach their goal of Y2K compliance. While the individual accomplishments of the airlines, government agencies, airports, suppliers and affiliated organizations are themselves remarkable, the collaborative efforts of those organizations -- working cooperatively not competitively -- has enabled them to pool their resources and overcome incredible obstacles in unified pursuit of a goal that once seemed unattainable.

And that is the most important message that other industries -- and government agencies -- can take away from commercial aviation. It's important to work together with combined resources to attack this critical and widespread problem.

Certainly, there are still challenges ahead. But the progress of the last six months has demonstrated the aviation industry's continued commitment to safety and dedication to excellence. As we chart a course for the next millenium, I feel confident that we will continue to provide the safest and most reliable system of transportation in the world.

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COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
WITH THE
HOUSE TASK FORCE ON Y2K

HEARING TO REVIEW AVIATION COMPLIANCE RELATED TO THE YEAR 2000 COMPUTER PROBLEM

SEPTEMBER 29, 1998

REMARKS OF
WALTER S. COLEMAN
REGIONAL AIRLINE ASSOCIATION

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REGIONAL AIRLINE ASSOCIATION

Thank you, Mr. Chairman. The Regional Airline Association appreciates the opportunity to appear before the committee today.

RAA and others in the aviation industry are aware that the technology that provides our outstanding national air transportation system is crucial to the safety and efficiency of aviation. We also know that we must ensure that this technology will be capable of providing the same level of performance beyond the year 2000. The aviation community recognizes this and has been working to ensure we have this capability.

I will now describe the efforts of the RAA.

RAA MEMBER AIRLINE PLAN FOR THE Y2K TRANSITION

RAA members, which include airlines and suppliers, are participating in both individual and industry initiatives to address the issues associated with ensuring that the technology dependent on software and processors will function safely and efficiently in the Year 2000. At the direction of the RAA Board of Directors, RAA staff has participated with the Federal Aviation Administration on ATC issues associated with Y2K. RAA has also been directly involved with the excellent efforts of the Air Transport Association on airport readiness. RAA members are working directly with their suppliers, with some assistance from RAA staff, to confirm that their aircraft and support for the aircraft will operate safely in the Year 2000.

RAA AND THE FAA AIR TRAFFIC CONTROL SYSTEM

RAA staff participated with FAA staff and other ATC users as we collectively examined the FAA Air Traffic Control System components. As the Committee knows, they were basically categorized into three elements. The three categories are equipment which is critical to safety of flight, equipment contributing to the efficiency of flight and all other systems. RAA agrees with and supports the FAA determinations on the allocation of their resources.

RAA attends and participates in the quarterly FAA "Industry Days" and is prepared for increased involvement with the FAA if the status of issues require additional attention. Last week at a RAA meeting on Year 2000 issues, FAA representatives briefed our member airlines on the status of their ATC plan.

RAA will work with FAA as necessary to assist in our mutual realization of a fully implemented Y2K program by June 30, 1999.

AIRPORT COMPLIANCE WITH Y2K

Early this year, the Air Transport Association invited RAA to participate with them in the development of materials to provide to airports which are served by RAA member airlines but not served by ATA member airlines. RAA and its members accepted this very generous offer as both ATA and RAA recognized that a coordinated effort to provide assistance and resources to many of the smaller airports would be a benefit to ATA and RAA but mostly would benefit the air traveling public.

RAA contributed to the development of the training and checklist materials, collectively known as the "Tool Kit" which will be provided to several hundred airports in the country, including those that are served by RAA member airlines. As a point of reference, there are 703 airports in the United States which receive scheduled airline service. Of those 703 airports, 514 are served exclusively by regional airlines. Within the 48 states, 289 airports are served exclusively by regional carriers. The ATA initiative to provide these resources to the smaller airports is extremely praiseworthy and important to the success of this element of Y2K preparation

Our member airlines are in the process of being advised of the delivery of the ATA developed Tool Kit to the airports and are prepared to assist the airports in performing their assessment of their needs to prepare for Y2K.

AIRCRAFT AND ASSOCIATED SUPPORT EQUIPMENT

RAA members have agreed that each individual supplier is responsible for advising its customers of the Y2K status of its products. This includes aircraft, aircraft components and support equipment such as maintenance testing equipment, aircraft components tracking and systems for maintaining records for repairs and other maintenance and operations functions.

RAA staff is in the process of identifying a list to provide to members, of suppliers which are providing airlines with Y2K status assessments. The information RAA would provide to members would include the supplier's Y2K contact and web site address if available. This initiative is intended to expedite the communication between our members and the suppliers.

SUMMARY

The commercial aviation industry including airlines, airports and suppliers recognize the crucial importance of proper preparation for the transition to the Year 2000. RAA will communicate continuously with its members through meetings, mailings and electronic communications to augment the resources of members to prepare our industry for the year 2000. We will work with FAA and with each other to ensure a safe, reliable and efficient air transportation system throughout 1999 and into 2000.

Thank you.

Testimony before the House Subcommittee on Aviation

Richard C. Cullerton
Assistant Vice President for Engineering
Metropolitan Washington Airports Authority

September 29, 1998

Good morning Mr. Chairman and Members of the Subcommittee, I am Richard Cullerton, Assistant Vice President for Engineering at the Metropolitan Washington Airports Authority (Authority). Thank you for the opportunity to appear before the House Subcommittee on Aviation to inform you of the Authority program to address the Year 2000 (Y2K) problem. First, I would like to tell you about the Authority. The Authority operates both Ronald Reagan Washington National Airport (National) and Washington Dulles International Airport (Dulles). Together, both Airports moved over 30 million passengers in the past year. Clearly, Y2K problems would have a major travel impact in this region. For that reason the Authority established a Task Force to address potential Y2K impacts. The Task Force is supported by our Information Technology Consultant - CACI. The Authority has developed a plan of action, has broken the problem into manageable areas and has made significant progress over the past six months in addressing the Y2K problem. The following discussion covers the Authority's organization, plan of action, work breakdown structure, current progress and future work.

The Authority's Year 2000 Organization

On April 14,1998, Mr. James E. Bennett, COO, appointed me as the Authority's Year 2000 (Y2K) Program Manager. Each of the 12 Authority offices plus our Capital Development Program Manager - Parsons Management Consultants (PMC) were directed to appoint a Y2K Coordinator to form the Authority's Year 2000 Task Force (Attachment 1). On April 30, 1998, the twelve Authority Coordinators and the PMC Coordinator met to kick off the Y2K Program and to assign tasks and responsibilities. Each of the major components such as National Airport, Dulles Airport and the Office of Public Safety developed a supporting organization representing all their functional areas. In addition, our Information Technology Consultant, CACI was tasked to provide Y2K support personnel.

Plan of Action

The Authority has implemented a remediation approach based on the GAO format that encompasses five phases:

- Phase 1 Awareness
- Phase 2 Assessment
- Phase 3 Renovation
- Phase 4 Validation
- Phase 5 Implementation

The Awareness Phase has essentially been completed. The Assessment Phase is underway thanks to a joint undertaking with the Air Transport Association (ATA) that resulted in the development of an Airport Functional Area Breakdown (Attachment 2) and an initial inventory of systems potentially impacted by the Y2K problem. The Renovation Phase is underway with the upgrading of personal computers and will continue with software and embedded system upgrading. An embedded system is one where a micro processor is incorporated into a system to perform a dedicated, pre-programmed function - a micro processor that controls a building heating, ventilating and air conditioning system, for example. The Validation Phase will test the compliance of our major hardware, software, and embedded systems. Finally, the Implementation Phase will ensure all systems and their dependencies are upgraded to validated Y2K configurations and that those configurations are maintained through the year 2000 rollover. A plan for this phased approach over time is in Attachment 3.

Work Breakdown Structure
The Authority has divided the Y2K world into four areas - Personal Computers (PC), software, embedded systems, and external interfaces. Each area is being worked on concurrently.

There are approximately 796 personal computers in the Authority. 784 of them have been tested and 780 or 98% have been found to be Y2K compliant. Only four personal computers were found to be noncompliant so far. Each new computer purchased during the next 15 months will be tested. It is safe to say that our PC area will not be a problem.

The Authority has identified 296 software packages and systems that are in use. Most of these software systems are commercial-off-the-shelf products. Developers of these software products are being contacted to determine if their products are Y2K compliant. As of September 18, 1998, responses (letters and other supporting information) have been received on 158 (53%) of these software packages/systems. The responses indicate that 79 software products were compliant and 79 were not compliant. In over half the noncompliant responses, an upgrade to a more current version of a product was recommended. The Authority is well on its way with its software certification program and has begun the process of renovating identified problem software.

The embedded area involves 126 systems located at National Airport, Dulles Airport and within the Office of Public Safety. Embedded systems are being identified and remediated using a top-down process. This entails first defining the Authority's functional areas, such as Facilities Maintenance or Airport Services. Next, the embedded systems that support each of the functional areas are identified. For example, Heating, Ventilation, and Air Conditioning (HVAC) and Fire Alarm systems support Facilities Maintenance, while Elevator and Escalator systems support Airport Services. Each embedded system is assigned a System Owner, usually the person who is responsible for the operation and maintenance of the system. The System Owner works closely with the Y2K Task Force in preparing for the year 2000. The next steps are to conduct an inventory of the embedded system components (an initial inventory of components indicated we might have as many as 1,000), and to contact the respective vendors for information about Y2K compatibility. Based on the information gathered, the System Owner assists in preparing a Renovation Plan that lays out what has to be done to make the system Y2K compliant. The highest risk systems will be scrutinized most closely and treated most urgently, and resources for system repair will be made available accordingly.

The Authority also has dependencies which are outside its control. These are collectively called external interfaces. The bulk of these dependencies concern utility providers, such as Virginia Power, Columbia Gas, Bell Atlantic and the Arlington and Fairfax County Water Authorities. Non-utility dependencies include the FAA and user airlines, as well as fuel providers, fixed base operators, and Metrorail. Even a partial failure of any of the external interfaces has the potential to radically affect airport operations. The Authority has contacted its providers and are working with them to achieve mutual preparedness. The Authority is dependent on their efforts to prepare for the year 2000 and will continue to coordinate with them to help ensure that the interfaces between our organizations are compliant.

Progress to Date

The Authority actually began the Y2K effort in October 1997, when the initial software inventory was identified by the Information Systems Department. In January 1998, certification letters to software vendors were sent out. In February 1998, the Authority participated in a pilot program with the ATA to identify all airport Y2K systems. ATA, using Price Waterhouse, evaluated both Authority airports and developed an inventory of over 500 potential non-compliant Y2K systems components. In March 1998, the Procurement Operations Department required Y2K compliance language in all future Authority procurements. A Y2K training program, by the Building Owners & Managers Association (BOMA) was conducted for the Authority Task Force. Thirty one employees were trained in the Y2K process. In addition, the Authority has increased its consultant support level to seven to provide assistance to Dulles on finishing the embedded component inventory.

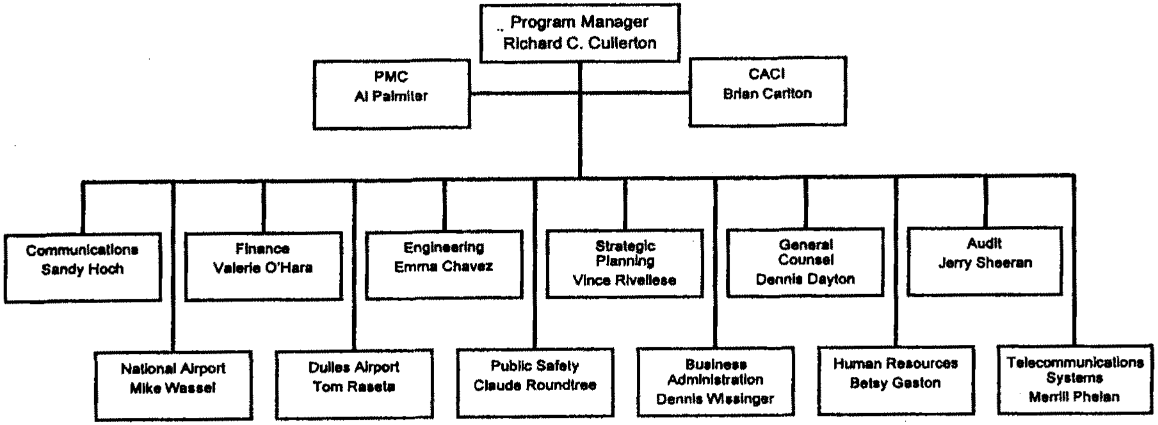
Future Work

The Authority's initial goal is to complete the remediation program by August 1, 1999. This allows a five month period to handle unforseen problems that may arise. Ultimately the final goal is to have all critical systems remediated by December 31, 1999. Remediation will involve considerable component repair, replacement and overall system validation. Because the Y2K problem is a unique experience to airports, establishing a budget is one of the most difficult parts of this effort. There are no models or past experience to serve as a basis for establishing a budget. Instead the Authority is collaborating with other airports and aviation organizations, and continuing to collect Authority field data to establish budgetary numbers. For 1998 $1.1 million has been reprogrammed to cover consultant support costs and system upgrades. The bulk of the remediation and testing will occur in 1999 and will be budgeted from the Repair & Rehabilitation Program. The Authority is estimating a $6 million budget.

Conclusion

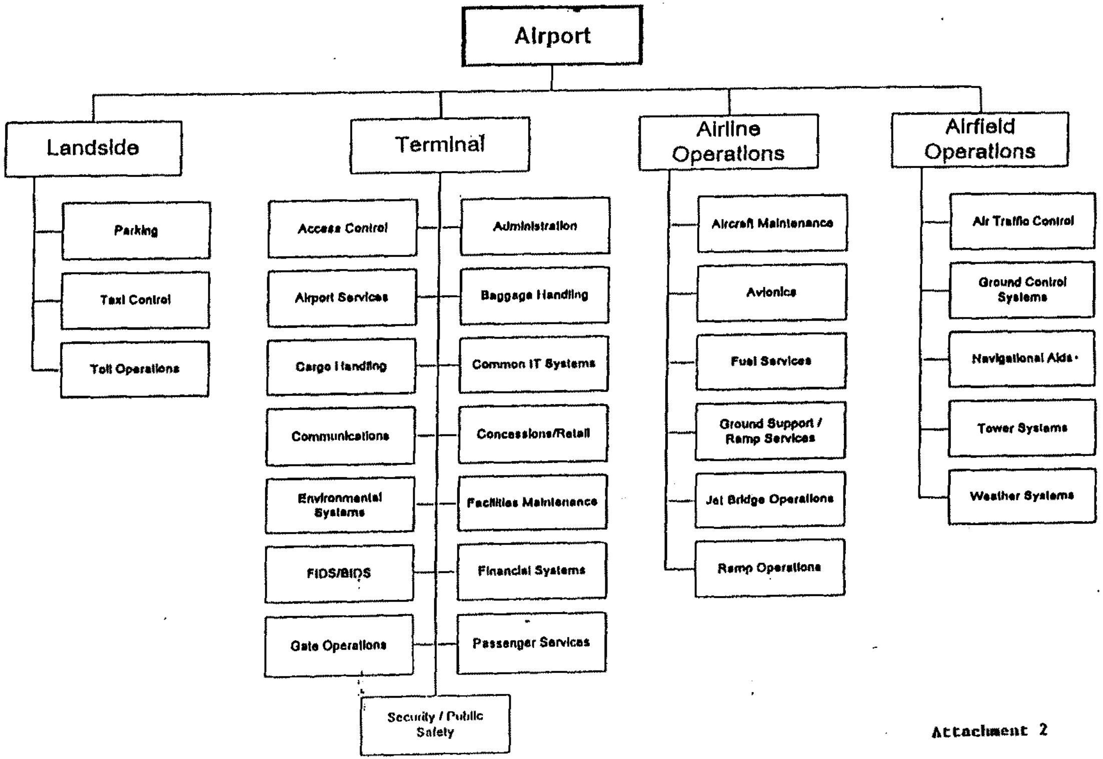
The Authority has recognized the problem, formed a Task Force to attack it, provided consultant support, and established a strategy to concurrently work both hardware and software issues. The Authority feels confident that it can resolve the critical system issues over the next 16 months. The objective is to ensure that both of our Airports operate normally on Saturday, January 1, 2000.

MWAA YEAR 2000 ORGANIZATION



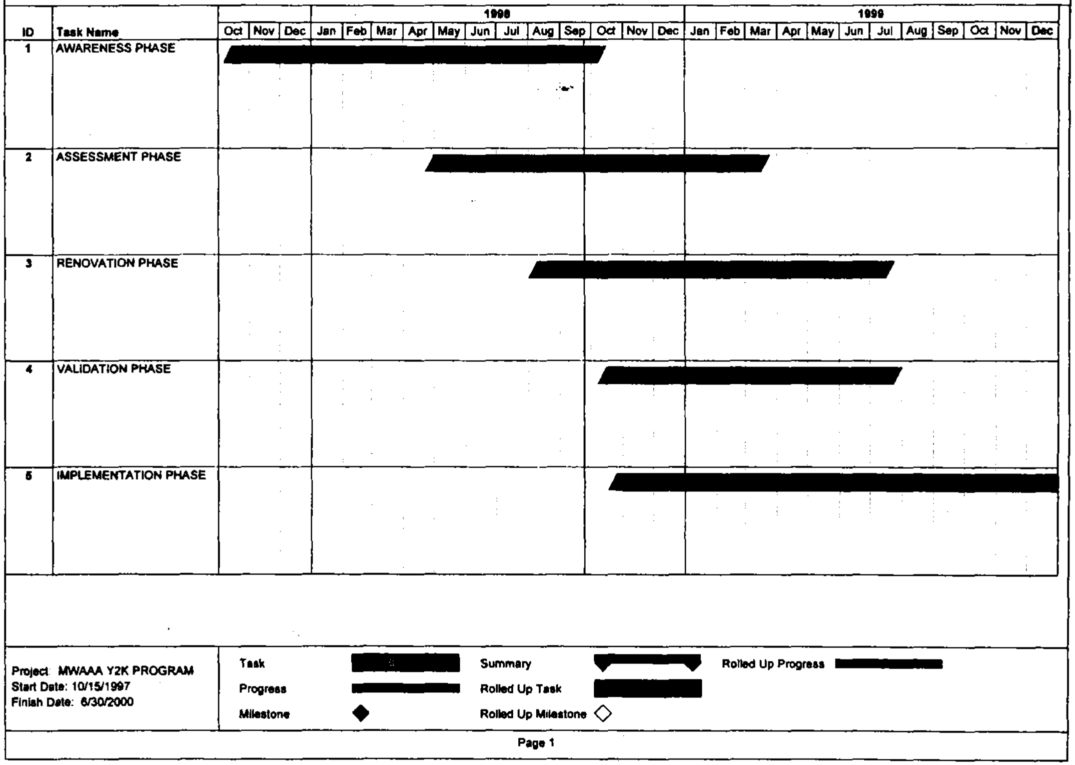
Attachment 1

FUNCTIONAL AREA BREAKDOWN



Attachment 2

MWAA Y2K PROGRAM MASTER SCHEDULE



Attachment 3

STATEMENT OF THE HONORABLE JANE F. GARVEY, FEDERAL AVIATION ADMINISTRATOR, BEFORE THE HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, THE HOUSE COMMITTEE ON SCIENCE, SUBCOMMITTEE ON TECHNOLOGY, AND THE HOUSE COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT, SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY. SEPTEMBER 29, 1998.

Chairman Duncan, Chairman Horn, Chairwoman Morella, and Members of the Committees:

I appreciate the opportunity to appear before you this morning to discuss the impact of the Year 2000, or "Y2K," technology problem on the aviation industry and Federal Aviation Administration (FAA) efforts to address Y2K readiness of our systems.

Let me reassure you that the FAA is dedicated to making sure that the advent of the new millenium will not bring any compromise in aviation safety with it.

I have given my commitment to the American public, and now commit to you, their representatives, that aviation safety will not be compromised on January 1, 2000, or on any other day. In fact, addressing the Year 2000 technology problems is one of my highest priorities. In February of this year, I changed the FAA's approach to the Y2K problems. In assessing where the FAA was in solving the Y2K problems, I found that one line of business within the FAA, Air Traffic Services, had developed a successful approach that involved centralized management, with a clear plan, process, and milestones. I made that the model for the rest of the agency and created an agency-wide Year 2000 program office reporting directly to me. I asked the manager of the Air Traffic

Y2K program, Ray Long, to head the new agency-wide office. Under Ray's guidance and leadership, Air Traffic Services did not miss a single Y2K deadline, and now that he's leading the FAA program office, we have closed a significant gap in the Office of Management and Budget's (OMB) Federal Y2K compliance schedule, and continue to move steadily toward our final solutions.

Our teams in the field have already assessed every system in the FAA – not just mission-critical systems that are absolutely necessary to the FAA's commitment to aviation safety, but every single system. We are now completing our renovation phase, where we actually make modifications to the systems that need them. By tomorrow, September 30, the OMB deadline for renovations, the FAA is scheduled to complete renovations of 99% of all required systems, subject to review by the Department of Transportation's (DOT) Office of the Inspector General.

With respect to the HOST computer system, one of our core air traffic control systems, with the help of our vendors we have developed a well-defined strategy for the successful transition of the HOST computer into the next century. The existing system is scheduled to be completely replaced by the year 2000. However, as a contingency to HOST replacement, we have already completed renovations of the existing HOST as of July 31, two months ahead of OMB's September 30th renovation deadline. If there is a need for the HOST to be operational in the Year 2000, we are assured that it will transition to the new millenium in a routine manner.

We have already started our next phase, validation, or testing of individual components and systems, for some systems. Validation will begin in earnest next month. In addition to our validation process that incorporates General Accounting Office (GAO) guidelines, we are planning comprehensive end-to-end tests, which test the interrelationships of systems and whether individual fixes of components will work together as a whole. These end-to-end tests will be conducted at our Technical Center in Atlantic City, which can simulate any of our Air Traffic Control Centers, and at operational facilities in Denver. These end-to-end tests will reinforce our assurance that individual system fixes will work together in an operational environment and thus ensure aviation safety.

As we continue our wider repair efforts, we are on schedule to have the majority of our systems compliant within the DOT's and OMB's deadline of March 31, 1999. All FAA systems will be fully compliant by the end of June 1999, a date that we have accelerated from our original estimate of November 1999. In early October of this year, with renovation successfully behind us, we will evaluate our schedule once again to accelerate it, wherever possible, to meet the deadline of March 31, 1999, which OMB has established as the date that mission-critical systems government-wide will be Y2K-compliant.

We have overcome many obstacles to get where we are today, and I am very proud of the work that we have been able to accomplish thus far. Nevertheless, we recognize that we face many other challenges in the months ahead. We have strengthened our program management by teaming with an outside business partner, Pricewaterhouse Coopers, which has the expertise to support us through the management and oversight of this project. In doing so, we have been able to better focus the strengths of FAA personnel, such as extensive knowledge of the National Airspace System (NAS), and successfully leverage our technical resources. We have been able to make such significant progress because we have taken this new approach. But let me say, Mr. Chairmen/Chairwoman, I am not overconfident – and I won't be until January 2, 2000.

At this point, I'd like to turn the focus of my remarks today to our collaborative work with our industry counterparts. First, I'd like to say a few words about our plans for collaboration with our labor partners. In June, we briefed the National Air Traffic Controllers Association (NATCA), the Professional Airways Systems Specialists (PASS), and the National Association of Air Traffic Specialists (NAATS) on our Y2K efforts. On September 18, we initiated discussions with all labor groups to strategize our Y2K contingency planning. We have also scheduled a follow-up meeting with these groups on October 8-9 to collaborate on our contingency planning activity. These meetings will enable us to complete the FAA Business Continuity and Contingency Plan, the agency-wide contingency plan, by the end of the year. The contribution of our workforce is essential to completing this activity.

We have also made great strides in our partnerships with the aviation industry, both domestically and internationally. The FAA sponsored an "Industry Day" in June of this year, and we have scheduled another for late October. These Industry Days bring together key stakeholders from all sectors of the aviation industry to raise awareness and work together to solve Y2K problems that are specific to aviation safety and efficiency. Our June Industry Day included participants from the FAA, as well as representatives from airlines, airport authorities, aircraft manufacturers, the communications field, and international groups. The agenda focused on identifying Y2K issues with our industry partners, and potential solutions to those issues. Over 120 attendees from all sectors of the aviation community attended, and I think it's fair to say that we all felt that the information and cooperation that we generated was beneficial for all of us. For our upcoming Industry Day, we are planning to invite a full range of representatives from the aviation community. Our focus on that day will be the status and progress of our industry partners, the external activities of the FAA, and the FAA's next steps towards validation testing of FAA systems.

We have formed an airport industry working group to facilitate a clear understanding of airport Y2K issues within the airport operator community, and we have developed an Internet web page for the dissemination of Y2K airport information and guidance. We have communicated with manufacturers of critical airport systems stressing the need for their products to be Y2K compliant and asking that pertinent information be sent to affected airports and FAA. We have developed and distributed a comprehensive airport system list to over 5,000 public airports to help them identify and correct Y2K issues, and are currently developing a letter to FAA-certificated airports outlining responsibilities for assessing and remediating Y2K problems. We have also made every effort to include them in our Industry Days to make sure that their specific concerns are raised.

In these airport outreach activities, we have learned that some airports, particularly smaller airports, are having difficulty with Y2K compliance because they lack the resources to hire the necessary personnel with the unique expertise to conduct assessments of their existing airport facilities, technology systems or equipment. In an effort to aid these airports, we are proposing an amendment to the FAA reauthorization bill now pending. This amendment would provide authority during Fiscal Year 1999 only for airports to use their Airport Improvement Program (AIP) entitlement grants or State apportionment funds to assess all the existing airport facilities, technology systems or equipment owned by the airport, whether or not such systems are normally eligible for AIP assistance. This will enable these airports to discover the scope of their Y2K problem. Our estimate is that, with this new authority, airports may use as much as $100 million from their existing AIP resources to accomplish this task.

Finally, our work in the international arena has been an important focus of our Y2K efforts. In April of this year, we issued a Year 2000 International Project Plan, implementing coordination with international partners. We are working closely with the International Civil Aviation Organization (ICAO) to raise awareness of Y2K issues in the international community. We have assigned a full-time FAA employee to work with ICAO in their Montreal, Canada office, to offer guidance and support in any way we can. This month, I represented the FAA at ICAO's General Assembly in Montreal. There the United States sponsored a formal resolution that will require a Notice to Airmen (NOTAM) for Y2K from each nation to provide public assurance of the validated safety of their systems through the year 2000 date change. We also cosponsored another resolution that will require ICAO to develop and publish international Y2K assessment criteria, along with status information they have obtained.

We have also initiated informal working groups with different international entities to solve common Y2K problems. We recently completed a testing agreement with Canada and are currently coordinating an agreement with Mexico, to test data exchanges and directly interfacing air traffic control systems to ensure that travel between the U.S. and these countries continues to flow smoothly at the turn of the millenium.

In summary, I want to say that although I am pleased with and proud of the progress that the FAA has made in solving our Y2K problems, we do recognize that Y2K presents a set of problems we have never encountered before, and that there are differing views as to how those problems should be defined and solved. We also recognize that different stakeholders will have widely ranging resources and expertise in solving Y2K problems. The FAA is committed to doing whatever we can within the scope of our authority to assist the members of the aviation industry to make a smooth transition to the new millenium.

I would also like to take a moment to thank you, the Chairmen and Members of the Committees, for helping all of us in government and industry to find the solutions to Y2K problems. Your invaluable oversight has been instrumental in our success in dealing with the Y2K technology problem and encourages everyone to work collaboratively to ensure that our transition to the new millenium is successful. The work of your Committees and our partnerships with industry are generating awareness, and generating action and results. This is an immovable deadline that we have to meet together, and with your guidance, I am sure that we will make it.

I appreciate the opportunity to address the Committees this morning, and I would be pleased to answer any questions you may have.

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JOINT HOUSE COMMITTEE TESTIMONY
SEPTEMBER 29, 1998

BY

DWIGHT W. GREENLEE

The year 2000 (Y2K) problem is one of two-digit century recognition by computerized devices which perform certain activities dependent upon the specified date. This problem has been created by programmer efforts to make systems as efficient as possible. Other dates, such as; 12/31/1998, 09/09/1999, 12/31/1999, 02/28/2000, 02/29/2000, 03/01/2000, 12/31/2000 and 12/31/2027 may also cause problems due to the systems failure to recognize leap years and other technical computer programming reasons. When a computerized system is required to retrieve the correct date it may not recognize the two-digit date and generate erroneous results or shutdown entirely.

Given the limited time remaining (459 days), it has become critical management at all levels prioritize their resources to assure "mission critical" systems perform as required. This is why the Wichita Airport Authority (WAA) joined with others to pool resources to solve this problem. In February of 1998, WAA joined with the City of Wichita and others to coordinate efforts. It is now time, in a spirit of cooperation and information sharing, for the nation and the world organizations to join.

Cooperation requires commitment of funds, people and sharing of information. As long as fear of legal action and exposure to additional liability exists, organizations find themselves in an approach/avoidance state. To relieve this dilemma, it is necessary to pass legislation such as that which is currently proposed.

The announcement of a Web site furnished and maintained by EDS is a step in the right direction. It is reported the site contains information concerning 125,000 items representing 3,000 vendors. I have accessed this site and found it useful. It is necessary to expand this data base to include test criteria, remediation procedures and documentation.

Y2K compliance procedure is costly and organizations are forced to find the money. The Wichita Airport Authority is faced with an approximate quarter of a million dollar expenditure. This expenditure is in excess of a planned $800,000 project to replace legacy computer systems. Small airports do not have a quarter of a million dollars readily available. It is necessary to issue debt financing, apply for Airport Improvement Program funds (AIP), to include the request in a Passenger Facility Charge (PFC) application or all of the above. At this time, I do not believe that many projects necessary to obtain Y2K compliance for "mission critical" applications are eligible under the AIP or PFC programs. If the programs are eligible, their priority is so low as to render the funding not available. "Mission Critical" Y2K projects at airports need to be placed at the top of AIP and PFC priority schedules.

The application process for AIP and PFC funds is time consuming and once the moneys are assured the purchasing procedures can prolong a project for 60 to 90 days. A fast track process should be formulated which allows all necessary assurances to be made and eliminate delay. This type of procedure could be applied to areas, such as; utilities, security, environment and airfield related safety systems and equipment.

A vast majority of Airports carry General Liability insurance. It is questionable whether this insurance will cover claims resulting from failures due to Y2K problems. Certain insurance providers are requiring the insured to provide additional information concerning their facilities, systems and management procedures. If the response to these questions is satisfactory, the insurance provider will issue coverage for an additional premium. It is our desire to resolve Y2K problems prior to reaching the stage of liability claims. A resource, such as the environmental insurance fund, should be considered.

Sharing of information resources is imperative at this time. Industry organizations are sponsoring informational meetings. These meetings are instrumental in development of information networks leading to solutions. The coordination and dissemination of documented information should be assigned to a responsible entity consisting of industry representatives, technology experts, manufactures and vendors. Funding activities of this group should come from government, the technology industry and other industries whom stand to gain. All of us are going to expend a great deal of resources solving this problem. If we unite, the problem can be solved faster at a much higher level of efficiency and effectiveness.

Statement of Carol B. Hallett
President and Chief Executive Officer
Air Transport Association of America
Before the Transportation and Infrastructure Committee,
Government Reform and Oversight Subcommittee on
Government Management, Information and Technology,
and the Science Subcommittee on Technology
On the Year 2000 Efforts of the Aviation Industry
September 29, 1998

Mr. Chairman and members of the subcommittees, I am Carol Hallett, President and Chief Executive Officer of the Air Transport Association of America. I appreciate the opportunity to appear before the subcommittees to discuss today the Year 2000 readiness of the air transportation industry. The Air Transport Association represents twenty-three U.S. flag carriers and five foreign flag airlines.[1]

As we race closer to the Year 2000, the public's interest in the readiness of key industries will undoubtedly intensify. Aviation, a headline grabber on the busiest of news days, is without question at the forefront of many people's minds. Based upon the programs we have implemented, I am confident that the aviation system will operate safely on December 31, 1999; on January 1, 2000; and beyond. Our industry, from the CEOs down through the ranks is aware of what has to be done and the timeframe in which the work must be completed. Unsafe operations are anathema to all of them.

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[1] The Member airlines are: Airborne Express, Alaska Airlines, Aloha Airlines, America West Airlines, American Airlines, American Trans Air, Atlas Air, Continental Airlines, Delta Air Lines, DHL Airways, Emery Worldwide, Evergreen International Airlines, Federal Express, Hawaiian Airlines, Midwest Express Airlines, Northwest Airlines, Polar Air Cargo, Reeve Aleutian Airways, Southwest Airlines Co., Trans World Airlines, United Airlines, United Parcel Service, and US Airways. The Associate members are Aeromexico, Air Canada, Canadian Airlines International, KLM – Royal Dutch Airlines, and Mexicana.

As part of the industry's Y2K readiness efforts, contingency plans are being made for every conceivable adversity from spot fuel outages to localized ATC outages to failures in the regional electric grid.

In short, we will be ready, we will be flying, and we will be flying safely.

Airlines and the Year 2000 Problem

The Year 2000 Problem is one that the airlines individually recognized as a technical and management challenge several years ago. Collectively, the industry has been working on an awareness program for airport operators and suppliers since last autumn. We believe we have a good story to tell about the state of the airline industry relative to the Year 2000 Problem.

The Aviation Industry's Collaborative Efforts

Each of our member airlines, passenger and cargo alike, has established a Year 2000 program to address its internal operational and business systems, and each of the members of ATA is making good progress towards having their internal systems repaired in early to mid 1999. However, the nature of the airline industry is such that every day, each airline relies on hundreds of outside entities, from the Federal Aviation Administration (FAA) to airport operators to the large and small commercial suppliers (including other airlines) in order to deliver their product or service.

Recognizing this extensive interdependency and commonality, the ATA Year 2000 Program was created to assist our members in determining the Year 2000 status of common, critical suppliers. Because so many airlines use so many of the same vendors, it made sense for the airlines to have ATA gather this information once and disseminate it to the airlines. Armed with these facts, each airline can then concentrate on analyzing the data and making business decisions about the availability of the goods and services it needs to provide safe operations.

In addition to establishing the ATA program, the airline industry has embarked on a similar program through the International Air Transport Association (IATA), based in Geneva, Switzerland. That program will determine the Y2K status of each of the 185 Air Traffic Service providers worldwide, as well as hundreds of international airports around the world. Finally, ATA has entered into an agreement with the Air Transport Association of Canada (ATAC) to inventory the Y2K readiness of systems at major Canadian airports. All together, over 300 airlines worldwide are engaged in a cooperative effort to determine the Y2K readiness of the aviation industry as a whole, so that it will be as safe to fly on January 1, 2000 as it is today.

The ATA program is broken into four major elements.

Government Agencies

There are a handful of Federal Government agencies that have a direct impact on the ability of airlines to deliver their product daily: FAA, Customs Service, Immigration and Naturalization Service, Animal and Plant Health Inspection Service and the National Weather Service. We are working with each of these agencies on two fronts. First, we are looking over their shoulders at their Y2K plans and their progress in meeting their goals. Second, we are working with each agency to facilitate any end-to-end testing that might involve the airlines and their various systems in order to assist uninterrupted business flow at the millennium change. As you know, the Y2K repair process can take several different forms, and it is important that systems that currently work together continue to do so after repairs are made. End-to-end testing helps to verify that these systems will remain functional, and is a vital element of any Year 2000 program.

U.S. Customs Service, Immigration and Naturalization Service, and APHIS

Each of these agencies has been most helpful in working with ATA and the airlines on the Year 2000 problem. The interactions between these agencies and the airlines are mostly related to the movement of passengers and cargo either before or after an airplane lands; therefore, they each impact on airline's ability to operate. We, of course, are concerned about the operational issues: Will passengers or cargo suffer long delays because one or more of these agencies must revert back to manual processing on January 1, 2000? We have met with each agency separately to review its work plans and to determine what interfaces exist with airline systems, and we believe that the scope of the problem is minimal. We are now working with these agencies to assemble a joint review to determine the feasibility, necessity and timing of any required end-to-end testing with the expectation that processing delays will not occur.

National Weather Service

The National Weather Service has identified eight systems that might affect airlines or FAA weather data processing, and is on track to repairing these systems. More importantly, NWS has already posted on its Website the test data that airlines and other end users of NWS weather products might need to ensure that their own repairs are compatible with the repairs made by NWS. FAA and NWS (along with the third party vendors of NWS products) and the airlines are working together to ensure the robustness of weather forecasting and associated real time information flows.

Federal Aviation Administration

While we are concerned about the Y2K health of the entire FAA, we have focused most of our attention on the FAA Air Traffic Control system. That entity has the most profound impact on the operations of the airlines: we cannot move an airplane from the gate without the permission of the FAA.

Mr. Chairman, as you know, ATA does not shy away from criticizing FAA actions with which we find fault. We have on occasion found ourselves at odds with FAA and DOT over issues large and small. But our efforts have always been designed to be constructive. Therefore, let no one misunderstand our perspective:

FAA has the Y2K problem under control and it appears, today, that FAA will be ready in early to mid 1999 for the millennium change.

While we do not completely agree with the schedule FAA has laid out for completing its work, we have confidence in their plan. Nevertheless, the airlines are putting their contingency plans into place, not only for spot outages within the ATC system, but also for spot electrical utility and telecommunications failures, fuel distribution problems, and a host of other contingencies. Let me stress, though, that these are contingency plans that we hope will never have to be implemented.

ATA began meeting with the FAA's Year 2000 Program Director, Ray Long, last fall when he was the program director for the FAA Air Traffic Services Y2K program. Mr. Long made a commitment then to ATA and the airlines that he would be completely open and honest about his progress in getting the ATC system fixed. He has kept his word. Moreover, Mr. Long committed to providing us any information we needed in order to make our assessments of the FAA's Y2K status. He has kept his word. Perhaps most importantly, he committed himself and his staff to be responsive to any criticisms that we might have about the FAA program. In this regard, too, he has kept his word. Every issue we have raised has been responded to in a positive fashion.

Our first concern was the Host Computer System. Last fall, news reports surfaced that IBM said the Host Computer, which FAA uses to help keep airplanes separated at altitude, would fail. As it turns out that is not what IBM said at all; the letter from IBM simply said that they could not verify whether or not the system would work. FAA undertook a program to perform its own evaluation and testing. As you know, FAA has now determined that the Host computer system does not have a Year 2000 problem. In

June, we validated this for ourselves: a delegation of airline Y2K and air traffic experts met with FAA's Technical Center personnel to review the test data and to observe the Host Computer team as it worked on various follow up activities. We have seen the results that FAA has reported to you, and they are real. The Host Computer is not a Y2K issue. Nevertheless, out of an excess of caution the FAA has also accelerated its Host computer replacement program.

The Host is but one of several hundred mission critical systems that FAA must put into working order. Notwithstanding what skeptics say about FAA, our evaluation is that FAA will indeed make the September 30 deadline of 99 percent completion on its Y2K renovation work. We expect that the DOT Inspector General will be able to validate that FAA has indeed made tremendous strides in getting to this important milestone. This is a remarkable recovery, considering that as late as February 4, 1998, many were predicting that FAA might be ready sometime in 2007! Because of the efforts of Administrator Jane Garvey, her focus on Year 2000, and her insistence that each Associate Administrator and everyone working for them pay close attention to the needs and demands of the FAA Y2K team, the FAA effort is really paying off.

We are satisfied with the FAA's current schedule, and remain cautiously optimistic about FAA's ability to meet that schedule. Given the progress FAA has made so far, we don't see any reason why the schedule cannot be kept. Like many others, however, we are hopeful that the schedule can be accelerated without compromising the integrity of the work being done. We have raised some concerns about the end-to-end testing plans put forth by the agency, and are working with the FAA Y2K team to ensure that the airline-ATC interfaces are repaired and working properly. We have also been working with FAA on its own internal contingency planning efforts. We are encouraged that the FAA has chosen to delay the release of the contingency plan until it is properly coordinated with the front-line people (the controllers) who have to implement it. This type of coordination and cooperation is vital to the success of any Year 2000 planning effort.

Airports

Airport operations present an interesting and complex problem when it comes to the Year 2000. To the customer, every airport operates in basically the same fashion: you park, enter the terminal, check in, go to the gate, and board an airplane. The plane then taxis to the runway and off you go; the process is reversed at the destination airport.

Behind the scenes, though, there are a host of systems that enable an airport operate smoothly, many of which are never seen by customers; the complexity arises from the myriad of contractual agreements between airport operators, their vendors and their tenant airlines.

Fire trucks and other emergency equipment is generally owned and operated by the airport operator. The runway and airfield lighting systems, which sometimes have computer controls, are almost always airport owned. But inside the terminal and other buildings on the airport, ownership and therefore responsibility varies. At one airport, baggage-sorting equipment might be owned by a single airline, but used by many airlines. At another airport, the airport operator might own that equipment. At yet third airport, several airlines might have their own independent systems. The same varied ownership or Y2K responsibility might apply for access control systems, security checkpoints, jet bridges, flight information display systems, and a long list of other systems that make air travel safe, convenient and efficient.

Other examples include environmental systems, like heating/cooling systems and lighting systems, that usually, but not always, will be owned by the airport, and aircraft fueling systems which might be owned by yet another entity, such as a consortium of airlines or an independent third party.

To date, our efforts in the airport arena are limited to determining which systems exist at an airport and who has responsibility for each system. (Attachment 1 shows the functional areas being inventoried.) Efforts are now underway to determine the exact status of these systems at each airport. Airports and airlines will be able to update our inventory database on-line, enabling airport operators and airlines to determine quickly what remains to be done. (Attachment 2 is a sample of the follow up package being sent to airports and airlines.) In addition, airline and airport users of our database will be able to see if other airports or airlines have systems similar to theirs, through a system-specific information-sharing tool in the database. We hope that this will reduce some of the duplication of effort as each airport and airline goes through the Y2K assessment and remediation phase of its program. There are concerns about liability associated with the sharing of Y2K information of this nature, which will be discussed below.

Airports are grappling with the expense associated with Year 2000 remediation work. To date we have heard budget estimates from only a single airport. That facility has an initial budget of approximately $10 million, but has projected that it could spend up to $30 or $40 million. Airports are beginning to make inquiries of FAA as to the Airport Improvement Program eligibility of Year 2000 expenses.

While we encourage airports to pursue the use of Federal aid to the greatest extent possible, there may be a need for some direction from Congress on two fronts.

First, FAA may need authority to change AIP priorities in order to accommodate airport requests for Y2K funding. While we are not encouraging the creation of new AIP eligibility specifically for Y2K repair work, it is possible that some currently-eligible systems in need of Y2K repair may be ranked too far down the priority list to obtain a grant. Accordingly, we would encourage Congress to urge the FAA to ensure that eligible work can indeed be funded if such requests come from airports.

Secondly, Congress should be as forceful with airports as you have been with FAA and Federal agencies in your insistence that Y2K be the number one priority on their work schedules. While this might mean some delay in existing or planned development projects, every airline, not to mention other commercial businesses and every Federal Agency has made those types of decisions. Airports, which receive Federal aid, should be held to the same standard. Business as usual is not acceptable, until we know that every currently operating system is Y2K ready.

The airline Year 2000 Program will result in visits to 156 airports (Attachment 3) to inventory information and distribution of Year 2000 awareness and training kits to over 2,500 airports worldwide, over 600 in the U.S. and Canada alone (Attachment 4). This data collection effort, developed by ATA and the International Air Transport Association, has been endorsed by the Airports Council International of North America, the American Association of Airport Executives, the Regional Airline Association, the Air Transport Association of Canada, and the International Civil Aviation Organization.

To date, we have completed our inventory work at 81 airports. In terms of overall Y2K preparation, 20 of the 81 airports are currently on schedule according to their Y2K plans; and nine are between one to three months behind schedule. Twenty-four airports are either more than three months behind or have indicated that they will not be through with their Y2K work until after June 30, 1999; and most disturbing, 28 airports – 35 percent – have indicated that they do not have a formal plan for dealing with Year 2000. While these numbers are troublesome, generally speaking airport operators and airlines are working together to perform the necessary analysis and repairs so that airport operations will not be a Y2K bottleneck.

Commercial Suppliers

ATA, like many other trade associations and in fact, many individual businesses, has undertaken a massive program of contacting critical suppliers to airlines. Like other organizations that have undertaken such programs, we have experienced low response rates. A summary of the results of our efforts in this regard is shown at Attachment 6.

To get started, we asked the airlines for lists of their suppliers, and then ran a commonality check on the business names submitted. Among the 11 airlines that provided their supplier lists, there were over 22,000 company names submitted. Of those, approximately 5,400 were common to two or more airlines; approximately 500 were common to more than half of the airlines. (Attachment 7)

We mailed questionnaires (Attachment 8) to the 5,400 firms, and for 500 firms that are common to more than half of the airlines we asked them to participate in more detailed telephone interviews and/or face to face presentations. To date, we have completed approximately 30 of the planned 142 face-to-face presentations; but they are time consuming, so we are re-evaluating that aspect of the program.

Nonetheless, we are encouraged by the results obtained from major supplier presentations to date. For the most part, those companies have been able to tell us exactly which of their products are impacted by Y2K; some have assisted by telling the airlines what repairs have to be made. We expect similarly detailed information from our phone interview process.

Industry-Owned Organizations

The last major element of the ATA Year 2000 Program concerns our Industry-Owned Organizations. The airline industry owns several organizations (Attachment 9) that provide vital services to individual carriers. For example, ARINC, based in Annapolis, provides communications and information services to the airline industry to the airline industry. The Airlines Clearing House provides a facility for the net settlement of intercarrier accounts receivable billings between its airline participants. The Airline Reporting Corporation administers the accreditation of U.S. travel agents, as well as the reporting and settlement programs, by providing the infrastructure between travelers, travel agents and the airlines.

The ATA Year 2000 Program Office is tracking, on behalf of the airline industry, the Y2K status of each of these entities, including the Air Transport Association itself. These entities are at various stages of their Y2K programs, but all are making progress towards being ready in early to mid 1999. In fact, some of them are already offering test versions of their repaired systems and software. In addition, ATA is making good progress toward ensuring that its own house is in order. We have had to replace our telephone switch, and are currently in the process of replacing our network platform, in part because of Year 2000 concerns. We anticipate being fully Year 2000 compliant in June 1999.

HR 4240

The largest single problem, as I am sure you have heard from other industries is the flow of information about goods and services provided by third parties. Ironically, attorneys have simultaneously encouraged the distribution of questionnaires to their clients' suppliers, yet discouraged their clients from answering the questionnaires they receive. There is a great fear that answering questionnaires with anything other than a form letter stating that "we are planning to be ready" will result in lawsuit after lawsuit.

We recognize the need to share accurate Y2K status information if the millennium challenge is to be met. Passage of HR 4240, the Y2K Liability and Antitrust Reform Act would allow businesses to share information about their Y2K progress without fear of later being sued; it would also allow companies to more freely compare notes about their test results on third party systems. This legislation needs to be passed quickly to facilitate the Y2K program work of firms that rely on third party products or services and whose businesses are interdependent or linked electronically, with large numbers of third parties. Without free flowing information on the status of these third party products and links, airlines will not be able to ensure a completed program.

International Aviation Efforts

As I mentioned earlier, the International Air Transport Association (IATA) has embarked on a program very similar to the one undertaken by the ATA. In fact, except for fact that the scope of the IATA program extends to the far corners of the earth, the programs are identical in what they intend accomplish. The memberships of IATA and

ATA have jointly agreed that the data being collected would reside in a single database for all airline members to use.

IATA has as its mission the responsibility to gather information on airports and air traffic service providers outside of the U.S. and Canada, and we are jointly working on expanding our supplier data program to cover entities not based in the United States. IATA is working with the World Customs Organization and other international bodies to gather information on all entities that have an operational impact on airlines. In addition, the International Civil Aviation Organization (ICAO) is conducting a survey of its Member States to determine the readiness of their air traffic and airport systems. FAA and IATA have staff people in place in Montreal to assist ICAO in its efforts to determine the Y2K status of the global air transportation network.

Finally, ATA is working closely with the Air Transport Association of Canada to apply our program to airports, suppliers and government entities in Canada.

The fruits of all these efforts fall into a single basket, a secure database that is accessible to airlines, airports, and others who have a need to know about our findings in order to make the aviation system ready for the millennium challenge.

Conclusion

The millennium change presents an extraordinary challenge for the aviation industry as a whole, forcing the various industry segments to work more closely together than they have in the past. Though an extraordinary challenge, the Y2K challenge is similar in many ways to the multitude of operational challenges that the airlines face daily. We believe that that experience, coupled with the industry information survey and exchange program, the planning efforts and resources devoted to this challenge by individual airlines, and the support of Congress and the administration, puts us in a position to provide the same safe, efficient and economical air transportation on January 1, 2000 that will be provided on December 31, 1999.

Air Transport Association

Functional Area / Organization Matrix

Attachment 1
Page 1 of 2

Functional Area	System Name	Responsible Department / Contact Name
Access Control	Airport Access Control System	
	Badging System	
Administration	Time & Attendance	
Airport Services	Digital Camera / Digital Recording Systems	
	Elevators	
	Escalators	
	Moving Sidewalks	
Baggage Handling Systems	Bag Match scanning system	
	Baggage Scale	
	In-bound Baggage System	
	Mail Scale	
	Outbound Baggage System	
	X-ray system	
Cargo Handling Systems	Cargo Scales	
	Cargo Tracking System	
Common IT Systems (Inf, HW, SW)	Common LAN Support	
	Fiber-optic comm equipment	
	Local Area Network	
	Network comm equipment	
Communications	AIRINC	
	Automated Intercom System	
	Automated Paging System	
	Automated Voice Flight Information System	
	Communications Systems	
	Crash Net	
	Radio System	
	Emergency Audio Paging System	
	Fire Dispatch	
	Ground to air communications	
	Ground to ground communication	
	Local phone service	
	Long distance phone service	
	PBX / Key Systems	
	Phone/voice-mail system	
	Radio recorder	
	Scanner	
Environmental Systems	Boiler Room Control System	
	Chemical Feed Controllers	
	Chiller Systems	
	CO Monitoring System	
	Exterior Lighting Control	
	Fire Extinguisher Maintenance System	
	HVAC Control System	
	Interior Lighting System	
	Terminal Lighting System	
Facilities Maintenance	Alarm System	
	Automated Water Reading System	
	Back-Up Generator System	
	Electronic Metering System	
	Environmental Monitoring System	
	Fire Alarm System	
	HVAC System	
	Power Generation System	
	Power Monitoring System	
	Traffic Light Control System	
	Water Meter Reading System	
	Work Order Management System	
FIOS/BIOS	Electronic Signs Interface (Ticket counter)	

	Baggage Information systems	
	Internal/Airline Specific FIDS	
	MUFIDS System	
	Old IDS FIDS System	
Fuel Services	Fuel Distribution System	
	Fuel Tank Monitoring System	
	Refueling Equipment	
	Underground Fuel Management System	
	Vehicle Fuel Management System	
Gate Operations	Boarding Pass printer	
	Boarding Pass reader	
	Gate Assignment Planning System	
	Gate management system	
Ground Control Systems	Airfield Lighting Control System	
	Runway Friction Test System	
	Runway Temperature and Conditions Monitoring System	
Ground Support / Ramp Services	Catering systems	
	De-Icing Systems	
	Flight information systems	
	Ground Equipment Tracking System	
	Runway Clearing Equipment	
	Vehicle (Fleet) Management System	
Jet bridge operations / Maintenance	Jet Bridge	
	Programmable Logic Controller	
Passenger Services	Automated Announcement system	
	Back Office Operations	
	Bag tag automated system	
	Baggage Tracking system	
	Boarding system	
	Cargo support systems	
	Computer Based Training	
	Credit Card Scanning	
	Curb side check in system	
	Flight Information Systems	
	Passport Readers	
	Talking Bus	
	Ticketing systems	
	X-ray machine (check in)	
Ramp Operations / Control	FAA Systems Interface	
	Gate control/ scheduling systems	
	Local Tower System	
Security/ Public Safety	Aircraft Rescue and Firefighting Truck (T3000)	
	Command Center Vehicle	
	Crime Records Information System	
	FATS (Fire Arms Training System)	
	Fire Simulator Training System	
	Firehouse Control Software	
	Global personnel records	
	Hazardous Materials Response Unit	
	Heart Monitor	
	Loronics Digital Camera System	
	National Fire Codes System	
	Police IT System	
	Police Station Video System	
	Portable Xray System	
	Public Safety LAN	
Weather Systems / Services	Kavarous Weather Information System	
	Weather update teletype	

AIRPORT SYSTEMS REPORT

Please Update current plan information & end dates for Phases of Year 2000 Program

RESPONSIBLE PARTY: **Airport Authority**

SYSTEM NAME	CRITICALITY	Target Completion Date	Assessment Phase (End Date)	Remediation Phase (End Date)	Testing Phase (End Date)	Implementation Phase (End Date)
Airport Access Control System	Vital		◉	◉	◉	◉
Badging System	Vital		◉	◉	◉	◉
Camera Systems (Digital, Security, Video...)	Critical		◉	◉	◉	◉
Communications Systems (Radio...)	Vital		◉	◉	◉	◉
Fire Alarm System	Vital		◉	◉	◉	◉
Ground To Ground Communication	Critical		◉	◉	◉	◉
Hvac Control System	Critical		◉	◉	◉	◉
Local Area Network	Vital		◉	◉	◉	◉
Local Area Network	Vital		◉	◉	◉	◉
Mufids System	Critical		◉	◉	◉	◉
Pbx / Key Systems	Vital		◉	◉	◉	◉
Police It System	Vital		◉	◉	◉	◉
Runway Temperature & Conditions Monitoring System	Critical		◉	◉	◉	◉
Scanner	Vital		◉	◉	◉	◉
Vehicle Fuel Management System	Vital		◉	◉	◉	◉
Work Order Management System	Discretionary		◉	◉	◉	◉

Tiers 1 and 2 Airport Data Collection Site Visits
(By State)

City	Airport	Code
ALASKA		
Anchorage International	Anchorage	ANC
Fairbanks International	Fairbanks	FAI
Juneau International	Juneau	JNU
ALABAMA		
Birmingham International	Birmingham	BHM
Huntsville International	Huntsville	HSV
Mobile Downtown	Mobile	BFM
Mobile Regional	Mobile	MOB
ARKANSAS		
Adams Field	Little Rock	LIT
ARIZONA		
Phoenix Sky Harbor International	Phoenix	PHX
Tucson International	Tucson	TUS
CALIFORNIA		
Burbank-Glendale-Pasadena	Burbank	BUR
Fresno Air Terminal	Fresno	FAT
Los Angeles International	Los Angeles	LAX
Metropolitan Oakland International	Oakland	OAK
Ontario International	Ontario	ONT
John Wayne Airport	Orange County	SNA
Palm Springs Regional	Palm Springs	PSP
Sacramento Metropolitan	Sacramento	SMF
San Diego International/Lindbergh Field	San Diego	SAN
San Francisco International	San Francisco	SFO
San Jose International	San Jose	SJC
Santa Barbara Municipal	Santa Barbara	SBA
COLORADO		
Colorado Springs Municipal	Colorado Springs	COS
Denver International	Denver	DEN
CONNECTICUT		
Bradley International	Hartford	BDL
FLORIDA		
Daytona Beach International	Daytona	DAB
Ft. Lauderdale/Hollywood International	Fort Lauderdale	FLL
Southwest Florida Regional	Ft. Myers	RSW
Jacksonville International	Jacksonville	JAX
Key West International	Key West	EYW
Melbourne International	Melbourne	MLB
Miami International	Miami	MIA
Orlando International	Orlando	MCO
Palm Beach International	Palm Beach	PBI
Pensacola International	Pensacola	PNS
Sarasota-Bradenton	Sarasota	SRQ
St. Petersburg/Clearwater International	St. Petersburg	PIE
Tallahassee Regional	Tallahassee	TLH
Tampa International	Tampa	TPA
GEORGIA		
Hartsfield Atlanta International	Atlanta	ATL
Savannah International	Savannah	SAV
GUAM		
Guam International	Guam	GUM
HAWAII		
Hilo International	Hilo	ITO
Honolulu International	Honolulu	HNL
Kahului	Kahului	OGG
Keahole-Kona International	Keahole	KOA
Lihue	Lihue	LIH
IOWA		
Cedar Rapids Municipal	Cedar Rapids	CID

City	Airport	Code
IOWA		
Des Moines International	Des Moines	DSM
IDAHO		
Boise Air Terminal	Boise	BOI
ILLINOIS		
Chicago Midway	Chicago	MDW
Chicago O'Hare International	Chicago	ORD
Quad Cities	Moline	MLI
INDIANA		
Ft. Wayne International	Ft. Wayne	FWA
Indianapolis International	Indianapolis	IND
Michiana Regional Transportation	South Bend	SBN
KANSAS		
Wichita Mid Continent	Wichita	ICT
KENTUCKY		
Blue Grass	Lexington	LEX
Louisville Standiford Field	Louisville	SDF
LOUISIANA		
Baton Rouge Metropolitan	Baton Rouge	BTR
New Orleans International	New Orleans	MSY
Shreveport Regional	Shreveport	SHV
MASSACHUSSETTES		
Boston Logan International	Boston	BOS
MARYLAND		
Baltimore Washington International	Baltimore	BWI

City	Airport	Code
MAINE		
Bangor International	Bangor	BGR
Portland International Jetport	Portland	PWM
MICHIGAN		
Detroit/Wayne County International	Detroit	DTW
Kent County International	Grand Rapids	GRR
Kalamazoo/Battle Creek	Kalamazoo	AZO
Capital City	Lansing	LAN
Midland-Bay City-Saginaw	Saginaw	MBS
MINNESOTA		
Minneapolis-St. Paul International	Minneapolis	MSP
MISSOURI		
Kansas City International	Kansas City	MCI
Springfield Regional	Springfield	SGF
Lambert-St. Louis International	St. Louis	STL
MISSISSIPPI		
Jackson International	Jackson	JAN
MONTANA		
Billings Logan International	Billings	BIL
Great Falls International	Great Falls	GTF
NORTH CAROLINA		
Asheville International	Asheville	AVL
Charlotte/Douglas International	Charlotte	CLT
Piedmont Triad International	Greensboro	GSO
Raleigh-Durham International	Raliegh	RDU
NEBRASKA		
Lincoln Municipal	Lincoln	LNK
Eppley Airfield	Omaha	OMA

Tiers 1 and 2 Airport Data Collection Site Visits
(By State)

City	Airport	Code
NEBRASKA		
NEW HAMPSHIRE		
Manchester	Manchester	MHT
NEW JERSEY		
Atlantic City International	Atlantic City	ACY
Newark International	Newark	EWR
NEW MEXICO		
Albuquerque International	Albuquerque	ABQ
NEVADA		
McCarran International	Las Vegas	LAS
Reno/Tahoe International	Reno	RNO
NEW YORK		
Albany County	Albany	ALB
Greater Buffalo International	Buffalo	BUF
Long Island MacArthur	Islip	ISP
LaGuardia	New York	LGA
John F. Kennedy International	New York	JFK
Stewart International	Newbergh	SWF
Greater Rochester International	Rochester	ROC
Syracuse Hancock	Syracuse	SYR
Westchester County	White Plains	HPN
OHIO		
Cincinnati/Northern Kentucky International	Cincinnati	CVG
Cleveland Hopkins International	Cleveland	CLE
Port Columbus International	Columbus	CMH
Rickenbacker International	Columbus	LCK
James M. Cox Dayton International	Dayton	DAY
Toledo Express	Toledo	TOL
OKLAHOMA		
Will Rogers World Airport	Oklahoma City	OKC
Tulsa International	Tulsa	TUL
OREGON		
Mahlon Sweet Field	Eugene	EUG
Portland International	Portland	PDX
PENNSYLVANIA		
Lehigh Valley International	Allentown	ABE
Harrisburg International	Harrisburg	MDT
Philadelphia International	Philadelphia	PHL
Pittsburgh International	Pittsburgh	PIT
PUERTO RICO		
Luis Munoz Marin International	San Juan	SJU
RHODE ISLAND		
T.F. Green State Airport	Providence	PVD
SAIPAN		
Saipan International	Saipan	GSN
SOUTH CAROLINA		
Charleston AFB/International	Charleston	CHS
Columbia International	Columbia	CAE
Greenville-Spartanburg	Greenville	GSP
Myrtle Beach International	Myrtle Beach	MYR
SOUTH DAKOTA		
Joe Foss Field	Sioux Falls	FSD
TENNESSEE		
Lovell Field	Chattanooga	CHA
Memphis International	Memphis	MEM

Tiers 1 and 2 Airport Data Collection Site Visits
(By State)

City	Airport	Code
TENNESSEE		
McGhee Tyson International	Nashville	TYS
Nashville International	Nashville	BNA
TEXAS		
Amarillo International	Amarillo	AMA
Austin-Bergstrom International	Austin	BSM
Mueller International	Austin	AUS
Corpus Christi International	Corpus Christi	CRP
Love Field	Dallas	DAL
El Paso International	El Paso	ELP
Dallas/Ft. Worth International	Ft. Worth	DFW
Alliance Airport	Ft. Worth	AFW
Rio Grande Valley International	Harlingen	HRL
Houston Intercontinental	Houston	IAH
William P. Hobby	Houston	HOU
Ellington Field	Houston	EFD
Lubbock International	Lubbock	LBB
McAllen Miller International	McAllen	MFE
Midland International	Midland	MAF
San Antonio International	San Antonio	SAT
UTAH		
Salt Lake City International	Salt Lake City	SLC
VIRGINIA		
Norfolk International	Norfolk	ORF
Richmond International	Richmond	RIC
Roanoke Regional	Roanoke	ROA
Washington Dulles International	Washington DC	IAD
Reagan Washington National	Washington DC	DCA
U.S. VIRGIN ISLANDS		
Alexander Hamilton	St. Croix	STX
Cyril E. King	St. Thomas	STT
VERMONT		
Burlington International	Burlington	BTV
WASHINGTON		
Boeing Field	Seattle	BFI
Seattle-Tacoma International	Seattle	SEA
Spokane International	Spokane	GEG
WISCONSIN		
Austin Straubel Field	Green Bay	GRB
Dane County Truax Field	Madison	MSN
Mitchell International	Milwaukee	MKE

City	Airport	Code
ALABAMA		
Dothan	Dothan	DHN
Mobile	Mobile	BFM
Dannelly Field	Montgomery	MGM
Muscle Shoals	Muscle Shoals	MSL
Tuscaloosa	Tuscaloosa	TCL
ALASKA		
Adak Naf	Adak Island	ADK
Akhiok	Akhiok	AKK
Akiachak	Akiachak	KKI
Akiak	Akiak	AKI
Akutan	Akutan	KQA
Alakanuk	Alakanuk	AUK
Aleknagik	Aleknagik	5A8
	Aleneva	ALENEVA
Lazy Bay	Alitak	ALZ
Allakaket	Allakaket	AET
Ambler	Ambler	ABL
Amook Bay	Amook Bay	AK81
Anaktuvuk Pass	Anaktuvuk Pass	AKP
Angoon	Angoon	AGN
Aniak	Aniak	ANI
Anvik	Anvik	ANV
Arctic Village	Arctic Village	ARC
Atka	Atka	40A
Atmautluak	Atmautluak	08AK
Atqasuk	Atqasuk	ATK
Wiley Post - Will Rogers Mem	Barrow	BRW
Barter Island Lrrs	Barter Island	BTI
Beaver	Beaver	WBQ

City	Airport	Code
ALASKA		
Bethel	Bethel	BET
Bettles	Bettles	BTT
Birch Creek	Birch Creek	KBC
Boundary	Boundary	BYA
Brevig Mission	Brevig Mission	KTS
Buckland	Buckland	7K5
Candle 2	Candle	CDL
Cape Lisburne Lrrs	Cape Lisburne	LUR
Cape Newenham Lrrs	Cape Newenham	EHM
Central	Central	CEM
Chalkyitsik	Chalkyitsik	CIK
Chauthbaluk	Chauthbaluk	9a3
Chefornak	Cheforna	Z74
Chevak	Chevak	VAK
Chicken	Chicken	CKX
	Chignik	KCQ
Chignik Fisheries	Chignik	KCG
Chignik Lagoon	Chignik Flats	KCL
Chisana	Chisana	CZN
Circle City	Circle	K03
Circle Hot Springs	Circle Hot Springs	CHP
Clarks Point	Clarks Point	CLP
Coffman Cove	Coffman Cove	KCC
Cold Bay	Cold Bay	CDB
Merle K (mudhole) Smith	Cordova	CDV
Craig	Craig	CGA
Crooked Creek	Crooked Creek	CJX
Cube Cove	Cube Cove	CUW
Deering	Deering	0Z0

City	Airport	Code
ALASKA		
Delta Junction	Delta Junction	D66
Dillingham	Dillingham	DLG
Dolomi	Dolomi	DLO
Dora Bay	Dora Bay	DOF
Unalaska	Dutch Harbor	DUT
Eagle	Eagle	EAA
Edna Bay	Edna Bay	EDA
Eek	Eek	EEK
Egegik	Egegik	EII
Ekuk	Ekuk	KKU
Ekwok	Ekwok	KEK
Elfin Cove	Elfin Cove	ELV
Elim	Elim	ELI
Emmonak	Emmonak	ENM
Excursion Inlet	Excursion Inlet	EXI
False Island	False Island	2Z6
False Pass	False Pass	KFP
Fire Cove	Fire Cove	FIC
Flat	Flat	FTL
Fort Yukon	Fort Yukon	FYU
Edward G. Pitka Sr.	Galena	GAL
Gambell	Gambell	GAM
Golovin	Golovin	GLV
Goodnews Bay	Goodnews Bay	GNU
Grayling	Grayling	KGX
Gustavus	Gustavus	GST
Haines	Haines	HNS
Healy River	Healy Lake	HRR
Hobart Bay	Hobart Bay	HBH

City	Airport	Code
ALASKA		
Hollis	Hollis	HLY
Holy Cross	Holy Cross	HCR
Homer	Homer	HOM
Hoonah	Hoonah	HNH
Hooper Bay	Hooper Bay	HPB
Hughes	Hughes	HUS
Huslia	Huslia	HSL
Hydaburg	Hydaburg	HYG
Hyder	Hyder	4Z7
Igiugig	Igiugig	IGG
Iliamna	Iliamna	ILI
Ivanoff Bay	Ivanoff Bay	KIB
Kake	Kake	KAE
Kakhonak	Kakhonak	KNK
Kalskag	Kalskag	KLG
Kaltag	Kaltag	KAL
Karlug	Karlug	KYK
Kasaan	Kasaan	KXA
Kasigluk	Kasigluk	Z09
Kenai Muni	Kenai	ENA
Ketchikan Int'l	Ketchikan	KTN
Bob Baker Memorial	Kiana	IAN
King Cove	King Cove	KVC
King Salmon	King Salmon	AKN
Kipnuk	Kipnuk	IIK
Kitoi Bay	Kitoi Bay	KKB
Kivalina	Kivalina	KVL
Klawock	Klawock	9Z0
Kobuk	Kobuk	OBU

City	Airport	Code
ALASKA		
Kodiak	Kodiak	ADQ
	Koliganek	KOLIGAN
Kongiganak	Kongiganak	DUY
Kotlik	Kotlik	KOT
Ralph Wien Memorial	Kotzebue	OTZ
Koyuk	Koyuk	KKA
Koyukuk	Koyukuk	KYU
Kwethluk	Kwethluk	KWT
Kwigillingok	Kwigillingok	AK85
Lake Minchumina	Lake Minchumina	LMA
Larsen Bay	Larsen Bay	09AK
Levelock	Levelock	KLL
Lime Village	Lime Village	23AK
Little Diomede Island	Little Diomede Islan	LDD
Manely Hot Springs	Manely Hot Springs	MLY
Manokotak	Manokotak	17Z
Marshall	Marshall	MLL
Mc Grath	Mc Grath	MCG
Mekoryuk	Mekoryuk	MYUU
Metlakatla	Metlakatla	MTM
Meyers Chuck	Meyers Chuck	AK84
Minto	Minto	51Z
Moser Bay	Moser Bay	KMY
Mountain Village	Mountain Village	MUO
Tibbetts	Naknek	4AK9
Napakiak	Napakiak	WNA
Napaskiak	Napaskiak	PKA
Naukiti	Naukiti	NKI
Nelson Lagoon	Nelson Lagoon	Z73
ALASKA		
New Stuyahok	New Stuyahok	KNW
Newtok	Newtok	WWT
Nightmute	Nightmute	AK08
Nikolai	Nikolai	5NI
Nikolski	Nikolski	IKO
Noatak	Noatak	WTK
Nome	Nome	OME
Nondalton	Nondalton	5NN
Robert Curtis Memorial	Noorvik	ORV
Nuiqsut	Nuiqsut	AQT
Nulato	Nulato	NUL
Nunapitchuk	Nunapitchuk	16A
Old Harbor	Old Harbor	6R7
Olga Bay	Olga Bay	KOY
Ouzinkie	Ouzinkie	4K5
Pedro Bay	Pedro Bay	AK04
Pelican	Pelican	PEC
Perryville	Perryville	AK05
James A Johnson Petersburg	Petersburg	PSG
Pilot Point	Pilot Point	PIP
Ugashik Bay	Pilot Point	UGB
Pilot Station	Pilot Station	AK10
Platinum	Platinum	PTU
Point Barker	Point Barker	KPB
Point Hope	Point Hope	PHO
Point Lay Lrrs	Point Lay	PIZ
Port Alsworth	Port Alsworth	PTA
Port Bailey	Port Bailey	KPY
Port Clearance	Port Clearance	KPC

Airports Receiving Toolkits
(By State)

City	Airport	Code
ALASKA		
Port Heiden	Port Heiden	PTH
Port Lions	Port Lions	ORI
Port Moller	Port Moller	PLM
Port Protection	Port Protection	AK19
Port Williams	Port Williams	KPR
Portage Creek	Portage Creek	AK14
Port Alexander	Prot Alexander	AK15
Deadhorse	Prudhoe Bay/deadh	SCC
Quinhagak	Quinhagak	AQH
Rampart	Rampart	RPM
Red Devil	Red Devil	RDV
Ruby	Ruby	RBY
Russian Mission	Russian Mission	RSH
Saint Mary's	Saint Mary's	KSM
Saint Michaels	Saint Michaels	SMK
Saint Paul Island	Saint Paul Island	SNP
Sand Point	Sand Point	SDP
Savoonga	Savoonga	SVA
Scammon Bay	Scammon Bay	SCM
Seal Bay	Seal Bay	SYB
Selawik	Selawik	WLK
Seward	Seward	SWD
Shageluk	Shageluk	SHX
Shaktoolik	Shaktoolik	38A
Sheldon Point	Sheldon Point	SXP
Shishmaref	Shishmaref	SHH
Shungnak	Shungnak	SHG
Sitka	Sitka	SIT
Skagway	Skagway	SGY
ALASKA		
Sleetmute	Sleetmute	SLQ
Smith Cove	Smith Cove	SCJ
South Naknek Nr 2	South Naknek	WSN
Stebbins	Stebbins	WBB
Stevens Village	Stevens Village	SVS
Stony River	Stony River	SRV
Ralph M. Calhoun Memorial	Tanana	TAL
Tatalina Lrrs	Tatalina	TLJ
Teller	Teller	AK54
Tenakee Springs	Tenakee	TKE
Tetlin	Tetlin	5TE
Thorne Bay	Thorne Bay	KTB
Tin City Lrrs	Tin City	TNC
Togiak Village	Togiak	TOG
Tok	Tok	TKJ
New Tokeen	Tokeen	AK57
Tokotna	Tokotna	TCT
Toksook Bay	Toksook Bay	OOK
Tuluksak	Tuluksak	TLT
Tuntutuliak	Tuntutuliak	AK61
Tununak	Tununak	TNK
Twin Hills	Twin Hills	AK63
	Uganik	UGANIK
Unalakleet	Unalakleet	UNK
Utopia Creek	Utopia Creek	UTOPIA C
Valdez	Valdez	VDZ
Venetie	Venetie	VEE
Wainwright	Wainwright	5WW
Wales	Wales	IWK

Airports Receiving Toolkits
(By State)

City	Airport	Code
ALASKA		
Waterfall	Waterfall	KWF
West Point Village	West Point	KWP
Whale Pass	Whale Pass	WHALE P
White Mountain	White Mountain	WMO
Wrangell	Wrangell	WRG
Yakutat	Yakutat	YAK
Zachar Bay Spb	Zachar Bay	KZB
AMERICAN SAMOA		
Pago Pago Int'l	Tutuila Island	PPG
ARIZONA		
Laughlin/bullhead Int'l	Bullhead City	IFP/BHC
Flagstaff Pulliam	Flagstaff	FLG
Libby Aaf/sierra Vista Muni	Fort Huachuca/sierr	FHU
Grand Canyon	Grand Canyon	JGC
Grand Canyon	Havasupai	HAE
Kayenta	Kayenta	OV7
Kingman	Kingman	IMG
Lake Havasu City	Lake Havasu	HII
Page Muni	Page	PGA
Ernest A. Love Field	Prescott	PRC
Show Low Muni	Show Low	SOW
Yuma Mcas/yuma Int'l	Yuma	YUM
ARKANSAS		
South Arkansas Regional	El Dorado	ELD
Drake Field	Fayetteville	FYV
Yampa Valley	Fort Smith	FSM
Boone County	Harrison	HRO
Memorial Field	Hot Springs	HOT

City	Airport	Code
ARKANSAS		
Jonesboro Muni	Jonesboro	JBR
Baxter County Regional	Mountain Home	BPK
Texarkana Regional-webb Fle	Texarkana	TXK
CALIFORNIA		
Arcata	Arcata/eureka	ACV
Meadows Field	Bakersfield	BFL
Mc Clellan-palomar	Carlsbad	CRQ
Chico Muni	Chico	CIC
Jack Mcnamara Field	Cresent City	CEC
Imperial County	Imperial	IPL
Inyokern	Inyokern	IYK
Long Beach/ Daugherty Field	Long Beach	LGB
Merced Municipal	Merced	MCE
Modesto City-county-harry	Modesto	MOD
Monterey Peninsula	Monterey	MRY
Oxnard	Oxnard	OXR
Palmdale	Palmdale/lancaster	PMD
Redding Muni	Redding	RDD
Sacramento	Sacramento	MHR
San Luis Obispo County - Mc C	San Luis	SBP
Santa Maria Pub/capt G Alla	Santa Maria	SMX
Sonoma County	Santa Rosa	STS
Lake Tahoe	South Lake Tahoe	TVL
Visalia Muni	Visalia	VIS
COLORADO		
San Luis Valley Regional	Alamosa	ALS
Aspen-pitkin Co/sardy Field	Aspen	ASE
Cortez Municipal	Cortez	CEZ

Airports Receiving Toolkits
(By State)

City	Airport	Code
COLORADO		
Durango - La Plata County	Durango	DRO
Eagle County Regional	Eagle	EGE
Fort Collins-loveland Muni	Fort Collins/loveland	FNL
Walker Field	Grand Junction	GJT
Gunnison County	Gunnison	GUC
Fort Smith Regional	Hayden	HDN
Montrose County	Montrose	MTJ
Pueblo Memorial	Pueblo	PUB
Steamboat Springs/bob Adams	Steamboat Springs	SBS
Telluride Regional	Telluride	TEX
CONNECTICUT		
Igor I Sikorsky Memorial	Bridgeport	BDR
Groton-new London	Groton	GON
Tweed - New Haven	New Haven	HVN
FLORIDA		
Eglin Afb	Fort Walton Beach	VPS
Gainesville Regional	Gainesville	GNV
Marathon	Marathon	MTH
	Miami	MPB
Naples Muni	Naples	APF
Panama City-bay Co Int'l	Panama City	PFN
St. Petersburg	St. Petersburg	PIE
GEORGIA		
Southwest Georgia Regional	Albany	ABY
Athens/ben Epps	Athens	AHN
Bush Field	Augusta	AGS
Glynco Jetport	Brunswick	BQK
Columbus Metropolitan	Columbus	CSG
GEORGIA		
Middle Georgia Regional	Macon	MCN
Valdosta Regional	Valdosta	VLD
HAWAII		
Hana	Hana	HNM
Kalaupapa	Kalaupapa	LUP
Waimea-kohala	Kamuela	MUE
Lahaina	Kapalua	JHM
Lanai	Lanai	LNY
Molokai	Molokai	MKK
Hanalei	Princeville	HI01
IDAHO		
Fanning Field	Idaho Falls	IDA
Lewiston-niez Perce County	Lewiston	LWS
Pocatello Regional	Pocatello	PIH
Friedman Memorial	Sun Valley	SUN
Twin Falls- Sun Valley Regional	Twin Falls	TWF
ILLINOIS		
Bloomington/normal	Bloomington	BMI
Palwaukee Muni	Chicago/prospect H	PWK
Vermilion County	Danville	DNV
Decatur	Decatur	DEC
Galesburg Muni	Galesburg	GBG
Williamson County Regional	Marion	MWA
Coles County Memorial	Mattoon/charleston	MTO
Mount Vernon	Mount Vernon	MVN
Greater Peoria Regional	Peoria	PIA
Quincy Muni Baldwin Field	Quincy	UIN
Greater Rockford	Rockford	RFD

Airports Receiving Toolkits
(By State)

City	Airport	Code
ILLINOIS		
Capital	Springfield	SPI
Whiteside County Airport	Sterling/rock Falls	SQI
University If Illinois-will	Urbana	CMI
INDIANA		
Monroe County	Bloomington	BMG
Evansville Regional	Evansville	EVV
Purdue University	Lafayette	LAF
Delaware County - Johnson Field	Muncie	MIE
Hulman Regional	Terra Haute	HUF
IOWA		
Burlington Regional	Burlington	BRL
Dubuque Regional	Dubuque	DBQ
Fort Dodge Regional	Fort Dodge	FOD
Mason City Muni	Mason	MCW
Sioux Gateway	Sioux City	SUX
Spencer Municipal	Spencer	SPW
Waterloo Muni	Waterloo	ALO
KANSAS		
Dodge City Regional	Dodge City	DDC
Garden City Regional	Garden City	GCK
Great Bend Muni	Great Bend	GBD
Hays Muni	Hays	HYS
Liberal Muni	Liberal	LBL
Manhattan Muni	Manhattan	MHK
Salina Muni	Salina	SLN
Forbes Field	Topeka	FOE

City	Airport	Code
KENTUCKY		
Owensboro-daviess County	Owensboro	OWB
Barkley Regional	Paducah	PAH
LOUISIANA		
Alexandria Esler Regional	Alexandria Esler	ESF
Lafayette Regional	Lafayette	LFT
Lake Charles Regional	Lake Charles	LCH
Monroe Regional	Monroe	MLU
MAINE		
Agusta State	Agusta	AUG
Handcock County - Bal Harbor	Bal Harbor	BHB
Northern Aroostook Regional	Frenchville	FVE
Northern Maine Regional Arp	Presque Isle	PQI
Knox County Regional	Rockland	RKD
MARIANAS		
West Tinian	Island Of W. Pacific	TNI
Rota Int'l	Island Of W. Pacific	GRO
MARYLAND		
Greater Cumberland Regional	Cumberland	CBE
Washington County Regional	Hagerstown	HGR
Salisbury - Wicomico County	Salisbury	SBY
MASSACHUSETTS		
Barnstable Muni-boardman/po	Hyannis	HYA
Nantucket Memorial	Nantucket	ACK
New Bedford Regional	New Bedford	EWB
Provincetown Muni	Provincetown	PVC
Marthas Vineyard	Vineyard Haven	MVY

City	Airport	Code
MASSACHUSETTS		
Worcester Muni	Worcester	ORH
MICHIGAN		
Alpena County Regional	Alpena	APN
Southwest Michigan Regional	Benton Harbor	BEH
Delta County	Escanaba	ESC
Bishop Int'l	Flint	FNT
Houghton County Memorial	Hancock	CMX
Ford	Iron Mountain/kingsf	IMT
Gogebic County	Ironwood	IWD
Manistee County - Blacker	Manistee	MBL
Marquette County	Marquette	MQT
Muskegon County	Muskegon	MKG
Pellston Regional Airport	Pellston	PLN
Chippewa County Int'l	Sault Ste. Marie	CIU
Cherry Capital	Traverse City	TVC
MINNESOTA		
Bemidji-beltrami County	Bemidji	BJI
Brainerd-crow Wing Co Regional	Brainerd	BRD
Duluth Int'l	Duluth	DLH
Fairmont Muni	Fairmont	FRM
Grand Rapids/itasca County-grodon	Grand Rapids	GPZ
Chisholm-hibbing	Hibbing	HIB
Falls Int'l	Int'l Falls	INL
Rochester Int'l	Rochester	RST
Saint Cloud Regional	Saint Cloud	STC
Thief River Falls	Thief River Falls	TVF
MISSISSIPPI		
Golden Triangle Regional	Columbus/west Pt./	GTR
MISSISSIPPI		
Greenville Muni	Greenville	GLH
Gulfport-biloxi Rgnl	Gulfport-biloxi	GPT
Hesler-nobel Field	Laurel/hattisburg	LUL
Key Field	Meridian	MEI
Tupelo Municipal-c D Lemo	Tupelo	TUP
MISSOURI		
Cape Girardeau Regional	Cape Girardeau	CGI
Columbia Regional	Columbia	COU
Fortney Aaf	Fort Leonard Wood	TBN
Joplin Regional	Joplin	JLN
MONTANA		
Gallatin Field	Bozeman	BZN
Bert Mooney	Butte	BTM
Wokal Field/glasgow Int'l	Glasgow	GGW
Dawson Community	Glendive	GDV
Great Falls Int'l	Great Falls	GTF
Havre City - County	Havre	HVR
Helena Regional	Helena	HLN
Glacier Park Int'l	Kalispell	FCA
Lewistown Muni	Lewistown	LWT
Frank Wiley Field	Miles City	MLS
Missoula Int'l	Missoula	MSO
Sidney-richland Muni	Sidney	SDY
L M Clayton	Wolf Point	OLF
NEBRASKA		
Alliance Muni	Alliance	AIA
Chadron Muni	Chadron	CDR
Central Nebraska Regional	Grand Island	GRI

Airports Receiving Toolkits
(By State)

City	Airport	Code
NEBRASKA		
Mc Cook Muni	Mc Cook	MCK
Karl Stefan Memorial	Norfolk	OFK
North Platte Regional	North Platte	LBF
William B. Heilig Field	Scottsbluff	BFF
NEVADA		
Elko Muni-j.c. Harris Field	Elko	EKO
Ely Airport/yellard Field	Ely	ELY
North Las Vegas Air Terminal	Las Vegas	VGT
	Las Vegas	HSH
NEW HAMPSHIRE		
Dillant-hopkins	Keene	EEN
Lebanon Muni	Lebanon	LEB
NEW JERSEY		
Mercer County	Trenton	TTN
NEW MEXICO		
Alamogordo-white Sands Regional	Alamogordo	ALM
Cavern City Air Terminal	Carlsbad	CNM
Clovis Muni	Clovis	CVN
Four Corners Regional	Farmington	FMN
Gallup Municipal	Gallup	GUP
Lea County/hobbs	Hobbs	HOB
Las Cruces Int'l	Las Cruces	LRU
Los Alamos	Los Alamos	LOS ALA
Roswell Industrial Air Cent	Roswell	ROW
Ruidoso Municipal	Ruidoso	RUI
Santa Fe County Muni	Santa Fe	SAF
Grant County	Silver City	SVC

City	Airport	Code
NEW YORK		
Binghamton Regional/edwin A	Binghamton	BGM
Elmira/corning Regional	Elmira	ELM
Elizabeth Field	Fisher Island	OB8
Tompkins County	Ithaca	ITH
Chautauqua County/jamestown	Jamestown	JHW
Republic	Long Island/farming	FRG
Massena Int'l/richards Field	Massena	MSS
Ogdenberg Int'l	Ogdenberg	OGS
Clinton Co	Plattsburgh	PLB
Dutchess County	Poughkeepsie	POU
Adirondack Regional	Saranac Lake	SLK
Oneida County	Utica	UCA
Watertown Int'l	Watertown	ART
NORTH CAROLINA		
Fayetteville Regional/grann	Fayetteville	FAY
Smith Reynolds	Greensboro/winston	INT
Pitt-greenville	Greenville	PGV
Hickory Regional	Hickory	HKY
Albert J Ellis	Jacksonville	OAJ
Kinston Regional Jetport	Kinston	ISO
Craven County Regional	New Bern	EWN
	Pinehurst	PINEHUR
Rocky Mount-wilson	Rocky Mountain	RWI
Moore County	Southern Pines	SOP
New Hanover Int'l	Wilmington	ILM
NORTH DAKOTA		
Bismarck Muni	Bismarck	BIS
Devils Lake Municipal	Devils Lake	DVL

City	Airport	Code
NORTH DAKOTA		
Dickinson Municipal	Dickinson	DIK
Hector Int'l	Fargo	FAR
Grand Forks Int'l	Grand Forks	GFK
Jamestown Municipal	Jamestown	JMS
Minot Int'l	Minot	MOT
Sloulin Fld Intl	Williston	ISN
OHIO		
Akron-canton Regional	Akron	CAK
Carl R Keller Field	Port Clinton	PCW
Put In Bay	Put In Bay	OH30
Rickenbacker	Rickenbacker	LCK
Youngstown-warren Regional	Youngstown	YNG
OKLAHOMA		
Vance Afb	Enid	END
Lawton Muni	Lawton	LAW
Dothan	Oklahoma City	DWN
Ponca City Municipal	Ponca City	PNC
OREGON		
Klamath Falls Int'l	Klamath Falls	LMT
Rogue Valley Int'l	Medford	MFR
North Bend Muni	North Bend	OTH
Eastern Oregon Regional At	Pendleton	PDT
Roberts Field	Redmond	RDM
PACIFIC ISLANDS		
Anguar Island	Anguar Island	ANG
Canton Island	Canton Island	PCIS
Christmas Island	Christmas Island	PLCH
Enewetak Aaf	Enewetak Aaf	PKMA
Johnston Island	Johnston Island	PJON
Koror, Babelthaup Island	Koror, Babelthaup I	PTRO
Kosrae Island	Kosrae Island	PTSA
Kure Island	Kure Island	KURE
Kwajalein Atoll	Kwajalein Atoll	PKWA
Majuro Atoll	Majuro Atoll	PKMJ
Midway Island	Midway Island	PMDY
Palmyra Island	Palmyra Island	PLPA
Pohnpei Island	Pohnpei Island	PTPN
Truk, Mohen Island	Truk, Mohen Island	PTKK
Wake Island	Wake Island	PWAK
Yap Island	Yap Island	PTYA
PENNSYLVANIA		
Altoona-blair County	Altoona	AOO
Bradford Regional	Bradford	BFD
Du Bois-jefferson County	Du Bois	DUJ
Erie Int'l	Erie	ERI
Venango Regional	Franklin	FKL
Johnstown-cambria County	Johnstown	JST
Lancaster	Lancaster	LNS
Westmoreland County	Latrobe	LBE
Reading Regional/carl A Spa	Reading	RDG
University Park	State College	SCE
Wilkes-barre/scranton Int'l	Wilkes-barre	AVP
Williamsport-lycoming County	Williamsport	IPT
PUERTO RICO		
Rafael Hernandez	Aguadilla/binghamto	BQN

City	Airport	Code
PUERTO RICO		
Rafael Hernandez	Binghamton	BQN
Culebra	Culebra	CPX
Fajardo Harbor	Fajardo	PR03
Eugenio Maria De Hostos	Mayaguez	MAZ
Mercedita	Ponce	PSE
Fernando Luis Ribas Dominic	San Juan	SIG
Antonio Rivera Rodriquez	Vieques	VQS
RHODE ISLAND		
Block Island State	Block Island	BID
Westerly State	Westerly	WST
SOUTH CAROLINA		
Florence Regional	Florence	FLO
Hilton Head	Hilton Head	HHH
SOUTH DAKOTA		
Aberdeen Regional	Aberdeen	ABR
Brookings Muni	Brookings	BKX
Huron Regional	Huron	HON
Pierre Regional	Pierre	PIR
Rapid City Regional	Rapid City	RAP
Soux Falls	Soux Falls	FSD
Watertown Muni	Watertown	ATY
Chan Gurney Muni	Yankton	YKN
TENNESSEE		
Tri-cities Regional Tn/va	Bristol/johnsoncity/k	TRI
Mckeller-sipes Regional	Jackson	MKL

City	Airport	Code
TEXAS		
Abilene Regional	Abilene	ABI
Austin	Austin	BSM
Brownsville/south Padre Isl	Brownsville	BRO
Brownwood Regional	Brownwood	BWD
Easterwood Field	College Station	CLL
Alliance	Dallas	DALLAS
Del Rio Int'l	Del Rio	DRT
Ellington Field	Houston	EFD
Killeen Muni	Killeen	ILE
Laredo Int'l	Laredo	LRD
Gregg County	Longview	GGG
Jefferson County	Port Arthur	BPT
Mathis Field	San Angelo	SJT
Draughon-miller Muni	Temple	TPL
Tyler Pounds Field	Tyler	TYR
Victoria Regional	Victoria	VCT
Waco Regional	Waco	ACT
Sheppard Afb/wichita Falls	Wichita Falls	SPS
UTAH		
Bryce Canyon	Bryce Canyon	BCE
Cedar City Muni	Cedar City	CDC
Canyonlands Fields	Moab	CNY
St George Muni	St. George	SGU
Vernal	Vernal	VEL
Wendover	Wendover	ENV
VERMONT		
Rutland State	Rutland	RUT

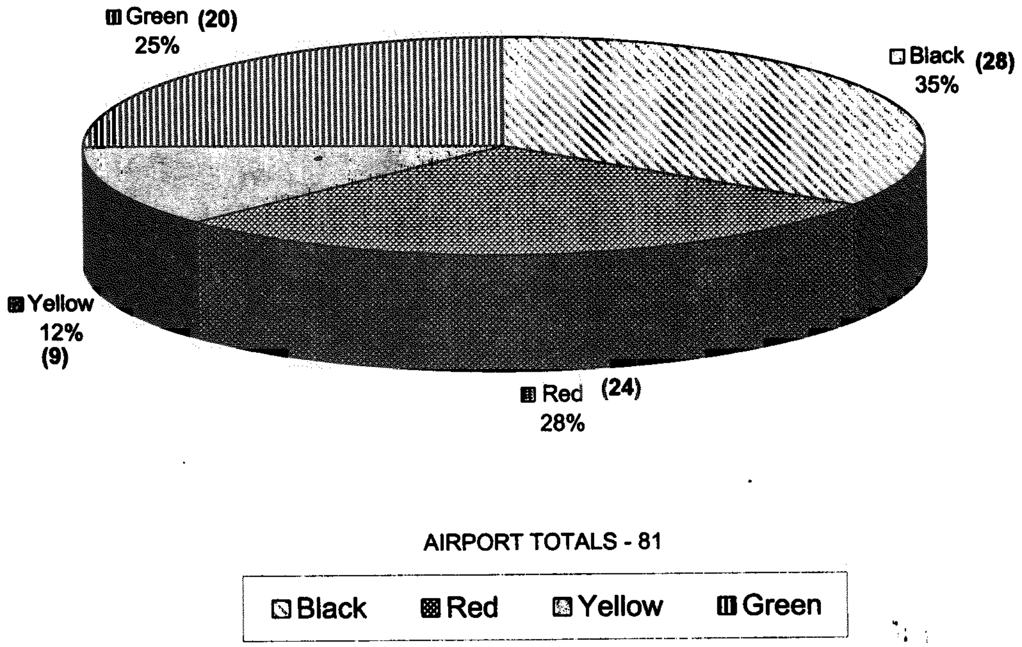
City	Airport	Code
VIRGINIA		
Charlottesville-albermarle	Charlottesville	CHO
Lynchburg Regional/preston	Lynchburg	LYH
Newport News/williamsburg	Newport News	PHF
Shenandoah Valley Regional	Staunton/waynesbor	SHD
WASHINGTON		
Anacortes	Anacortes	74S
Bellingham Int'l	Bellingham	BLI
Blakely Island	Blakely Island	S08
Center Island	Center Island	78WA
Decatur Shores	Decatur Island	WN07
Waldronaire	Eastsound	90WA
Friday Harbor	Friday Harbor	FHR
Lopez Island	Lopez	S31
Grant County	Moses Lake	MWH
Whidbey Island	Oak Harbor	NUW
Tri-cities	Pasco	PSC
William R Fairchild Int'l	Port Angeles	CLM
Pullman/moscow Regional	Pullman/moscow, Id	PUW
Roche Harbor	Roche Harbor	WA50
Rosario	Rosario	WA52
Boeing Field	Seattle	BFI
	Seattle	LKE
	Seattle/tacoma	SEATTLE/
Walla Walla Regional	Walla	ALW
Westsound/wsx	Westsound	WA83
Pangborn Memorial	Wenatchee	EAT
Yakima Air Terminal	Yakima	YKM

City	Airport	Code
WEST VIRGINIA		
Raleigh County Memorial	Beckley	BKW
Mercer County	Bluefield	BLF
Yeager	Charleston	CRW
Benedum	Clarksburg	CKB
Tri-state/milton J. Ferguson	Huntington	HTS
Greenbrier Valley	Lewisburg	LWB
Morgantown Muni-walter L.b	Morgantown	MGW
Wood County Airport Gill Rd	Parkersburg	PKB
WISCONSIN		
Outagamie County	Appleton	ATW
	Eagle River	EAGLE RI
Chippewa Valley Regional	Eau Claire	EAU
La Crosse Muni	La Crosse	LSE
Lakeland/noble F. Lee Memorial	Minocqua	ARV
Wittman Regional	Oshkosh	OSH
Rhinelander-oneida County	Rhinelander	RHI
Door County Cherryland	Sturgeon Bay	SUE
Central Wisconsin	Wausau	CWA
WYOMING		
Natrona County Int'l	Casper	CPR
Cheyenne	Cheyenne	CYS
Yellowstone Regional	Cody	COD
Gillette-campbell County	Gillette	GCC
Jackson Hole	Jackson Hole	JAC
Laramie Regional	Laramie	LAR
Riverton Regional	Riverton	RIW
Rock Springs - Sweetwater County	Rock Springs	RKS
Sheridan County	Sheridan	SHR

City	Airport	Code
WYOMING		
Worland Muni	Worland	WRL

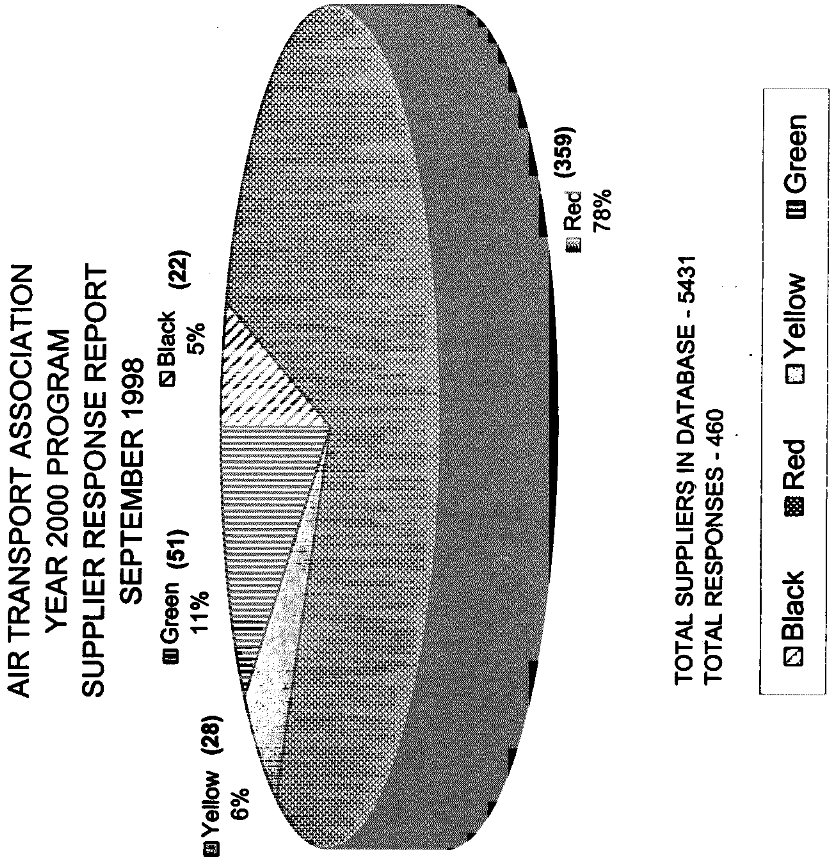
City	Airport	Code

AIR TRANSPORT ASSOCIATION
YEAR 2000 PROGRAM
AIRPORT STATUS REPORT
SEPTEMBER 1998



Air Transport Association

Attachment 6



AIR TRANSPORT ASSOCIATION
YEAR 2000 PROGRAM
SUPPLIER RESPONSE REPORT
SEPTEMBER 1998

TOTAL SUPPLIERS IN DATABASE - 5431
TOTAL RESPONSES - 460

4/flight Industries Inc
A Biederman
A O G
Aar Aircraft Turbine Center
Aar Allen Aircraft
Aar Cooper Aviation
Aar Hardware
x Aar Technical Service Center
x Aaxico
Abaco Petroleum Co Ltd
Abacus Distribution Systems
Abex Corp
Abilene Aero
Abs Partnership
Accu-sort Systems Inc
Advanced Materials Corp
Advantis
Aero Center (laredo Intl Airport)
x Aero Controls Inc
Aero Instruments & Avionics
Aero Instruments Inc
x Aero-craft Hydraulics Inc
Aero-tech (drake Field)
x Aerocell Structures Inc
x Aeronautical Radio Inc
Aeroparts Mfg And Repair Inc
Aeroquip Aerospace
Aerospace Interiors
Aerospatiale Inc
Aerotech Systems
Aerothrust Corp
x Aerotron Airpower
x Ages
Aid International
x Aim Aviation Inc
x Air Bp
x Air Cargo Inc
x Air Cruisers Co
Air Excellence Intl Inc
Air Lab Inc
Air Liquide
Air Parts Supply
Air Products Inc
Air Spares Inc
Air Total
Airbase Services Inc
Airborne Express
x Airbus Industrie
Aircraft And Precision Bearing Co
x Aircraft Braking Systems Corp
Aircraft Fueling Systems
x Aircraft Instrument & Radio
Aircraft Moduler Products Inc
Aircraft Pourous Media Inc
Aircraft Service International

Aircraft Services Inc
Airflite
Airkaman Of Jacksonville Inc
Airline Interiors Inc
Airline Reporting Corp
Airmotive Inc
x Airport Group Intl Inc
Airport Services
Akro Fireguard Products Inc
Allied Aviation Inc
Allied Callaway Equipment
x Allied-signal Inc
Alta Industries
x Amadeus Inc
American Connector Corp
American Express
American Lab And Systems
Ameritech Mfg Co Inc
Ametek
x Amoco Oil Co
Amphenol Corp
Amr Services Corp
Ancra Intl Corp
Arco Chemical Co
x Arco Inc
Argenbright Inc
x Arinc Research Corp
Arkwin Industries Inc
Aro Service
Artcraft Industries Corp
Asa Pemex
Asa Solutions Inc
Ashland Inc
x Ashland Petroleum Co
Astech Manufacturing
Astrotech Corp(
x At And T
Atlantic Aero
Atlantic Aviation
x Atr Inc
Avalon Inc
x Avfuel
Avia-dynamics Corp
x Aviall Inc
Aviation Composites Services
Aviation Distributors Inc
Aviation Fluids Service Inc
Aviation Product Support Inc
x Aviation Sales Co Inc
x Aviation Service Corp
Avio-diepen Inc
Avion Flight Centre
Avionics Specialists Inc
Aviosupport
Avsco /aviation Service Corp

x Avteam
Avtech Corp
Ayres Corp
x B E Aerospace Inc
x B F Goodrich
Bae Automated Systems Inc
Baker Audio Inc
Bank Of America
Barco Aviation Inc
x Barfield Instruments
Baron International Aviation
x Barry Control Aerospace
Be Aerospace Inc
Bearing Headquarters Co
Bearing Inspection Inc
Bell Canada
Bell Fuels Inc
Bell Industries Inc
Bendix Corp
Bhp Petroleum Americas Refining
Blackbird Aviation
x Boeing Co
Brice Inc
Brown And Bigelow
Bruce Industries Inc
Bucher Aerospace Corp
x Buckeye Pipeline Co
Buderus Sell+r894
x Burbank Aircraft Supply Inc
x Burns Aerospace Corp
Byerly Aviation
C And D Interiors
Cable & Wireless
x Cae Electronics Inc
Calson International Inc
Capstone Airline Supply
Cara Operations Limited
Cardinal Aerospace Inc
Carlson Marketing Group
Castle Precision Industries
x Caterair Intl
Central Wisconsin Aviation
Century Aero Products Intl Inc
Century Aviation
x Cfm International
Champion Plastics
x Chandler Evans Inc
x Chevron Mfg Co
x Chevron Oil
Chicago Pneumatic Tool Co
x Chromalloy Corp
x Citgo Petroleum Inc
City Lighting Products Co
Click Bond
Clyde Machines Inc

X - Suppliers invited to make Y2K Presentations to the ATA membership

x Coastal Refining And Marketing Inc
Cole-parmer Instrument Co
Coleman Electrical Supply Co
x Colonial Pipeline
Colorado Jet Center
Coltech Inc
Columbus Jack Corp
Comdisco Inc
Commerchamp Sa
Compuserve Inc
Computer Associates Intl Inc
Comsat
x Conoco Inc
Corporate Wings
Crane Co Hydro-aire Div
Crown Lift Trucks
Curoil
Curtis Industries Inc
Curtiss-wright Corp
Dalfort Corp
x Dallas Aerospace Inc
Dee Howard
Del Monte Aviation
Dell Computer
Detroit Diesel Corp
Dexter Tool Co Inc
Diasham
Diners Club
x Dinol Us Inc
Dixie Aerospace
x Dme Inc
x Dobbs International
Donaldson Co Inc
Dorsey & Whitney
x Douglas Aircraft Co
x Dowty Aerospace Corp
x Driesson
Drs Inc
Durango Air Service
Durham And Co
x Dynair Fueling Inc
Dynamation Research Inc
x E Systems
Eastern Aero Marine
Eg And G Inc
x Eldec Corp
Electronic Connector Corp
Electroswitch Corp
Elf
Embraer
England Jet Center
Evans & Sutherland
Everest And Jennings Inc
Evergreen Air Center
Executive Air

Explorer Pipeline
x Exxon Intl Co
F M C Corp
Fairchild Controls
Fastenal Co
Federal Express Corp
x Fenwal Inc
Fields Aircraft Spares Inc
x Fina
First Wave Inc
Flight Structures Inc
Flight Support Corp
Flightstar Corp
Florida Detroit Diesel-allison Inc
Fluke Service Center
x Fmc Corp
Fokker Aircraft
Fokker Services
Fort Wayne Air Service
x Fortner Eng And Mfg Inc
Fr Hitemp
Fuel Systems Textron Inc
Fuller Brush Co
x Gables Inc
x Galileo International
Garrett Aviation Services
Gec Marconi Avionics Inc
x General Electric Engine Services
x General Electric Supply Co
Global Equipment Co
Globe Airport Security
x Goodyear Tire And Rubber Co
Greenwich Air Services Inc
Griggs Paint
Gte Corp
Gulf Aviation
Hall-mark Electronics Inc
x Hamilton Standard
Harbour Air
Hawker Pacific Inc
Heath Tecna Aerospace Co
Helicomb Intl Inc
Hermetic Aircraft International Corp
Hewlett-packard Co
x Hexcel Corp
Hitachi Data Systems
x Honeywell Inc
Hoover Industries
Hrd Aero Systems Inc
x Hudson General Corp
Hughes-avicom Intl Inc
x Hydro-air Inc
Hydro-flex Inc
I B M Corp
Ibt Inc

Icore Intl Inc
Ifr Systems Inc
Ilmorrow
Image Air
Imaging Products Intl
Industrial Television Services
Innovative Tooling Services
Integrated Technology
x International Aero Inc
International Aerotech Inc
International Aircraft Support Group
International Fuels
Island City
Itt Corp
J And J Chemical Co Inc
Jameco Electronics
x Jeppesen Sanderson Inc
Jet Avion Corp
Jet Avionics Systems Inc
Jet Electronics
Jet International Corp
Jet Support Corp
Johnston Industrial Supply Inc
Jrc Designs
Kal-aero
Kapco Corp
Keller Fire And Safety
Kent Electronics
Kings Electronics Inc
x Kirkhill Aircraft Parts Co
x Koch Refining Co
Korry Electronics Co
L J Walch
L-3 Communications Corp
Lab One Inc
Lamar Electro-air Corp
Lane Aviation Corp
Larry Goad
Leach Corp
Leading Edge Aviation Services Inc
Lear Romec
Leland Electrosystems Inc
Lesman Instrument Co
x Liebherr-america Inc
x Litton Systems Inc
Lkd Limited
x Lockheed Martin Corp
Loral Systems Group
Lord Corp
Louisiana Aircraft Inc
Lubbock Aero
x Lucas Aerospace Inc
x M And M Aerospace Hardware Inc
M And N Aerospace
M L Deutsch & Co

X - Suppliers invited to make Y2K Presentations to the ATA membership

- x Magee Plastics Co
- Magnetic Ticket And Label
- Mapco Petroleum Inc
- Marathon Oil
- Marshall Electronics Inc
- Matrix Aviation Inc
- Matsushita
- Matsushita Avionics+r2452
- Mci Intl Inc
- Mercury Air Group Inc
- Messier Services Inc
- Messier-bugatti
- Messier-dowty
- Michael Lewis
- x Michelin Aircraft Tire Corp
- Microage
- Microdot Inc
- Microflex Medical Corp
- Midway Ford Truck
- Million Air
- Misco Inc
- Mitchell Aircraft Spares
- x Mitchell Aircraft Supply Inc
- x Mobil Oil
- x Monogram Sanitation
- Monsanto Chemical Co
- Montgomery Elevator Co
- x Moog Aircraft Group
- Moore Business Forms And Systems D
- National Flight Services Inc
- Nav Aids
- Ndt Technologies Inc
- Newark Electronics
- x Nordam Corp
- North Star Imaging Inc
- Northern States Power Co
- Norton Performance Plastics Corp
- Novus Services
- Octagon Process Inc
- Oeco Corp
- Official Airline Guide
- x Ogden Aviation Services Inc
- Olin Aerospace
- Opti Mfg Corp
- Pacaero
- x Pacific Air Industries
- x Pacific Scientific Co
- Pall Land Marine Corp
- x Parker-hannifin Corp
- Pas A Division Of Russell
- Paul Fournet Air Services
- Pemco Engineers
- Pennzoil Co
- Petro-canada
- Petrobras
- x Phillips 66 Co
- x Piedmont Aviation Services Inc
- Plantation Pipeline
- Pih Aviation Services
- x Ppg Industries
- x Pratt And Whitney
- x Praxair Inc
- Precise Metal Products Co
- Precision Industries Inc
- Pride Electronics Inc
- Primex Aerospace Co
- Prior Aviation Service Inc
- Pros Strategic Solutions
- Pyromet Corp
- R H Component Technologies
- R S Electronics
- R W Raddatz
- Radio Communications Co
- Rand Mcnally
- Ranger Aviation
- Rapiscan Security Products Inc
- Rapistan Corp
- Raychem Corp
- x Raytheon Co
- Recope
- Red Devil Equipment Co
- Regional Air
- Repsol Associates
- x Rockwell Collins Inc
- Rogerson Aircraft Corp
- x Rohr Aero Services
- x Rohr Industries Inc
- x Rolls-royce Inc
- x Rosemount Aerospace Inc
- Rugby Building Products
- Russ Nixon Auto Parts
- Saab Aircraft Of America
- x Sabre Decision Technology
- Sabreliner Corp
- Saft America Inc
- Sage Enterprises Inc
- Sargent Controls And Aerospace
- Satair Usa Inc
- x Schneller Inc
- Schober Aircraft Interiors
- x Scott Aviation
- Seal Dynamics Inc
- Sensor Systems Inc
- x Sextant Avionique Inc
- Slim Inc
- Shaw Aero Development Inc
- x Shell Co Ltd
- Sicma Aero Seat
- Sifco Selective Plating
- x Signature Flight Support Corp
- Simar Oil Inc
- Sinclair Oil
- Sita Business Systems Inc
- Skc Corp
- x Sky Chefs
- Sky Harbor Air Services
- Smith Industries Inc
- x Smiths Industries Aerospace And
- x Solair Inc
- Sonico Inc
- Sony Trans Com
- Southern Aero Parts
- Southern Pride Trucking Inc
- x Spar Aerospace Limited
- Spectrum Jet Center
- Stambaughs Air Service Inc
- Statoil
- Stevens Aviation Inc
- Storage Tek Financial
- Sun Ltd
- x Sun Microsystems Inc
- x Sun Refining And Marketing Co
- x Sundstrand Corp
- Sunpoint Aviation
- Superior Aviation
- Systron-donner Corp
- Tacair Inc
- Tafa Inc
- x Teledyne Controls
- Teledyne Inc
- Tension Envelope Corp
- x Texaco Inc
- Texas Aero Support Inc
- Texas Eastern Products Pipeline
- Thornton Technology Corp
- Time Aviation Services Inc
- Time Inc
- x Tosco Inc
- Total Turbine Services
- x Tramco Inc
- Trans States Airlines
- x Transaero Inc
- Transit Aviation
- x Tri Star Aerospace Inc
- Tri-state Aero
- Triad Aerospace
- Tronix Inc
- Tulsa Refurbishment Operation
- Tyler Jet Aviation
- U S Chrome Corp Of California
- x Union Carbide Corp
- Unipak Aviation Corp
- Unison Industries Inc
- Unisys Corp
- United Aviation

X - Suppliers invited to make Y2K Presentations to the ATA membership

United Energy
x United Technologies Corp
Vail Beaver Creek Jet Center
Valley Oil
x Vickers Inc
Vwr Scientific Inc
W H Henken Industries
W S Wilson
Wallace Computer Services Inc
x Walter Kidde Co
Wavetek Inc
x Weber Aircraft Inc
Wells Fargo
West Shore Pipeline
Westco International Inc
Western Extralite
Western Flight
Western Petroleum Co
Whittaker Controls
x Whittaker Corp
Whittaker Safety Systems
Windsor Airmotive Inc
x Wings Electro Sales Co Inc
Wisconsin Aviation Four Lakes
x Woodward Governor Co
x World Fuel Services Inc
x Worldspan Lp
Ypfb
Zephyr Inc

X - Suppliers invited to make Y2K Presentations to the ATA membership

May 14, 1998

Dear Sir or Madam:

Airlines throughout the world have a substantial interest in achieving a better understanding of how their manufacturers and suppliers are addressing Year 2000 computer issues.

Accordingly, approximately 300 airlines worldwide, through a coordinated activity by the Air Transport Association of America (ATA) and the International Air Transport Association (IATA), are pooling their resources to gather information about the Year 2000 preparedness of airline industry manufacturers and suppliers, including your organization. In order to avoid burdening you with multiple surveys from the various airlines with which you deal, we have devised the single enclosed questionnaire. We would be grateful if your Year 2000 program director would complete and return this questionnaire by June 5, 1998; a postage guaranteed envelope is provided for your convenience.

We believe that completing this questionnaire will be highly useful both for your own Year 2000 planning and for that of our member airlines. Each organization is, of course, ultimately responsible for identifying and fixing its own "date aware" systems. But, for contingency planning purposes, it also is important that our member airlines be informed of the steps being taken to address the Year 2000 problem by the organizations with which they do business.

If you have questions about this program, please feel free to contact Tom Browne or Paul Archambeault at the ATA Year 2000 Program Office (at +1 (202) 626-4200), or David Lloyd at the IATA Year 2000 Program Office (at +44 181 607-6243).

ATA and IATA view this project as a very important one. We thank you in advance for your cooperation.

Sincerely,

Airline Industry
Business Partner / Supplier
"Year 2000" Questionnaire

This questionnaire should be completed by the person most knowledgeable about "Year 2000" initiatives/projects within your company. Please return the completed questionnaire in the enclosed envelope by October 5, 1998. If you have any questions, please contact: ATA/IATA Year 2000 Program Office at (202) 626-4200.

Please read each question or statement and mark the box of the response that best describes your answer. Unless otherwise indicated in the question, mark only one response per item. Please answer every question.

1. Does your company have an established Year 2000 plan? ☐ Yes ☐ No

2. Who is the primary Year 2000 contact? What is his/her contact information?

Your Name ____________________
Title ____________________
Division / Department ____________________
Company Name ____________________
Phone Number ____________________
Fax Number ____________________
Internet e-mail ____________________

3. Please indicate the level and frequency of your company's Year 2000 management reporting process. Check all that apply.

		Project Team	Organization/ Management	CIO/ Executive Management	President
a.	Weekly	☐	☐	☐	☐
b.	Monthly	☐	☐	☐	☐
c.	Quarterly	☐	☐	☐	☐
d.	None	☐	☐	☐	☐

4. Below is a list of activities companies often undertake when addressing "Year 2000" computer problems. For each activity please indicate your company's status (e.g., is the work associated with the activity "less than 25% completed," "25 to 49% completed," "50 to 74% completed," or "75% or more completed?"). YOUR BEST ESTIMATE IS FINE.

		Less than 25% completed	25%-49% completed	50%-74% completed	More than 75% completed
a.	Company-wide communication on "Year 2000" issues	☐	☐	☐	☐
b.	Formulate "Year 2000" Strategy for your company	☐	☐	☐	☐
c.	Conduct preliminary inventory or assessment of computer systems/applications that may be affected by the "Year 2000" problems.	☐	☐	☐	☐
d.	Conduct detailed inventory or assessment of computer systems/applications	☐	☐	☐	☐

4. (Continued)

	Less than 25% completed	25%-49% completed	50%-74% completed	More than 75% completed
e. Renovate or replace computer systems/ applications Comments:	☐	☐	☐	☐
f. Test and validate renovated systems/applications	☐	☐	☐	☐
g. Implement or roll-out into production renovated computer systems/applications	☐	☐	☐	☐

5. What are the major milestones and target completion dates for key Year 2000 phases?

Many companies depend heavily upon the products and services provided by external organizations.

6. Below is a list of activities companies often undertake to assess the Year 2000 preparedness of their business partners and suppliers. For each activity please indicate your company's status (e.g., is the work associated with the activity "less than 25% completed," "25 to 49% completed," "50 to 74% completed," or "75% or more completed?"). YOUR BEST ESTIMATE IS FINE.

	Less than 25% completed	25%-49% completed	50%-74% completed	More than 75% completed
a. Establish a list of business partners	☐	☐	☐	☐
b. Completed an inventory of external business partners and suppliers.	☐	☐	☐	☐
b. Conducted a Year 2000 risk assessment of external business partners and suppliers.	☐	☐	☐	☐
c. Developed contingency plans for "at risk" external business partners and suppliers.	☐	☐	☐	☐

7. Please indicate the primary product or service that your organization provides to the airline industry.

Aircraft Parts/Repair	☐
Catering/Passenger Supplies	☐
Fuel	☐
Hazardous Material/Chemical	☐
Document Vendor	☐
Tools & Ground Equipment	☐

7. (Continued)

No Description Available ☐
Multiple Products or services ☐
Other (Please provide detail) ☐

8. In the space provided, please feel free to list any additional comments that you may have regarding "Year 2000" computer issues at your company.

____

____

____

____

Thank you for completing this survey.

Please return to the Following:

ATA Year 2000 Program Office
C/O Air Transport Association
1301 Pennsylvania Ave, NW Suite 1100
Washington, DC 20004

Industry Owned Organizations

Air Transport Association of America

Air Travel Card

Airlines Clearing House

Aeronautical Radio, Inc. (ARINC)

Air Cargo Inc.

Airline Industrial Relations Conference

Airline Tariff Publishing Company

Airline Reporting Corporation

Combined Airline Ticket Offices

High Density Airport Slot Services

Industry Audit Program

Metropolitan Washington Airlines Committee

Scheduled Airline Ticket Offices

SPEC 2000

TESTIMONY OF
JOHN J. KELLY, JR.
ASSISTANT ADMINISTRATOR FOR WEATHER SERVICES
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
BEFORE
THE TRANSPORTATION COMMITTEE, IN CONJUNCTION WITH THE SCIENCE COMMITTEE, AND THE GOVERNMENT REFORM COMMITTEE
U.S. HOUSE OF REPRESENTATIVES
SEPTEMBER 29, 1998

Thank you, Mr. Chairman, and members of the three Committees present, for this opportunity to testify on the subject of Year 2000 (Y2K) testing and compliance at the National Weather Service (NWS) and our relationships with the aviation and general public communities. The NWS, in conjunction with other National Oceanic and Atmospheric Administration (NOAA) agencies and Department of Commerce Information Technology groups has been working since 1996 to ensure that all its systems are Y2K-compliant so there is no disruption to operations when the millennium date change (from December 31, 1999, to January 1, 2000) occurs.

In recognition of the importance of weather data, all NWS computer-based systems (i.e., application software, system software, hardware, communications, and non-information processing systems) have been assessed in accordance with the U.S. Government Y2K compliance standards and requirements. These systems have either been certified or are in the process of being certified as Y2K compliant. All Y2K related fixes will be fully implemented at all NWS sites by the end of March 1999. NWS operations are complex and widespread, which makes Y2K compliance of particular importance. The NWS has over 170 communications interfaces with other federal Government agencies, private sector meteorological firms, research institutions, and other nations. These interfaces involve the receipt and transmission of thousands of observations each hour which are input to complex mathematical weather models. Aviation operations at all U.S. airports are dependent on these hourly and special surface weather observations, as well as airport terminal forecasts produced by the NWS. In addition, the NWS receives similar data for foreign airports which are in turn transmitted to the FAA and domestic airlines in support of flight operations planning. On average, the NWS receives, transmits, and processes over 50 billion characters of weather data per day. This complex and vast array of users, interfaces, and data distribution mechanisms poses some external risks that must also be addressed. As with other organizations that are heavily dependent upon the national communication infrastructure, there is some risk to our operations if the telecommunication companies we rely on are not Y2K compliant. There is also some uncertainty regarding the receipt of international weather data. As part of the overall contingency planning for Y2K, we are assessing these potential risks so that reasonable contingencies are in place to ensure the continued flow of weather data.

These eight systems were identified as those national systems determined to be the most critical to NWS operations: (1) Automated Surface Observing System (ASOS), (2) Next Generation Weather Radar (NEXRAD), (3) Advanced Weather Interactive Processing System (AWIPS), (4) NWS Telecommunication Gateway (NWSTG), (5) National Centers for Environmental Prediction (NCEP), (6) NWS Upper-Air program, (7) NWS River Forecast System (NWSRFS), and (8) Automation of Field Operations and Services (AFOS). While there are other NWS operational systems, they were determined to be non-mission critical for the purposes of Y2K. However, the status of these non-mission critical systems is still closely monitored to ensure their Y2K compliance. In addition to mission and non-mission critical systems, we are also ensuring the compliance of non-information processing systems such as security and access systems, heating and air-conditioning systems, and telephone and voice-mail systems.

Regarding the weather satellites managed by our sister agency, the National Environmental Satellite, Data, and Information Service (NESDIS), an inventory of NESDIS data exchanges and systems was conducted as part of the overall NOAA Y2K effort. This was instrumental in validating that the satellite data are real-time and do not require a year as a value to receive or process them.

We have worked with the Federal Aviation Administration (FAA), United States Air Force (USAF), United States Navy (USN), and NESDIS to ensure all major meteorological operational processing centers are able to continue to exchange and process critical meteorological data. The NWS has also partnered with its many private sector customers to ensure an uninterrupted data stream is available for their use. Additionally, given the importance of international data exchange, we are working with the World Meteorological Organization (WMO) and International Civil Aviation Organization (ICAO) to ensure continued receipt of data from other nations that are critical for forecast operations.

THE EFFECT OF Y2K ON WEATHER DATA

Unlike other sectors of the economy, date and year information is not critical to weather data products. Like the satellite weather data, all alphanumeric weather data (e.g., warnings, watches, forecasts, etc.) are unaffected by the Y2K date change. The only dates used in these data are a 2-digit day of the month and a 4-digit Universal Coordinated Time hour in the transmission header of each product. For example, on the 25th day of any month at 1700 hours, the only date information in the header of the data would be 251700. In fact, all weather products from around the globe use this day and hour format for the transmission of products. While there is a relatively small subset (approximately 5 percent) of binary-formatted weather products that do use limited year information, this information does not affect the transmission of these products on the various weather networks. We will be prepared to process these products.

As noted earlier, to assure success in demonstrating Y2K compliance, we have, along with our partners, designed an end-to-end test for Y2K to ensure that all weather systems will be able to exchange and process weather data properly when Y2K occurs. This testing will also be a final verification of the Y2K compliance testing already done for each individual system.

END-TO-END TESTING METHODOLOGY

The approach being used for this testing is based on a building block approach. First, a report detailing the testing that certifies the Y2K compliance of each system must be produced. Second, once individual system compliance is obtained, further testing involves a series of system-to-system interface tests to ensure that paired combinations of Y2K compliant systems can successfully communicate and exchange data. Third, a pseudo test network of systems simulating an end-to-end route of data exchange between the various NWS systems is configured in order to gain confidence that when the Y2K date change occurs, we will be able to operate with no interruption of data.

In the end-to-end testing, four specific test scenarios will be run. In the first test, the change from 31-DEC-1999 to

01-JAN-2000 will be run; this will be followed by two tests to cover the leap year scenario: 28-FEB-2000 to 29-FEB-2000 as well as the switch from 29-FEB-2000 to 01-MAR-2000. Finally, to ensure that the small subset of binary products referenced earlier, which have some unique representations of the year field, we will also test the switch over from 31-DEC-2000 to 01-JAN-2001.

The end-to-end testing is being done in conjunction with our domestic and international partners as well as our end-user customers. A pseudo network of backup and test systems is used in order not to disrupt any real-time operations prior to the actual date change. Due to the fact that weather data are generally independent of year information, we have been able to demonstrate successfully the Y2K date change and subsequent processing of live data on our various test systems. This ability to run our backup systems in a Y2K environment gives us a high degree of confidence that the NWS will operate successfully as we transition into the year 2000.

RELATIONSHIP WITH THE AVIATION COMMUNITY

The NWS has a long-standing relationship of working with the FAA to provide meteorological products in support of aviation. We have been working with both the Air Transport Association and FAA to ensure the products and services we provide are Y2K compliant. The various aviation model products produced provide both global offer technical advice on how other nations can attain Y2K compliance and assure the continued and uninterrupted flow of aviation data that we use to support the US aviation community. Part of our end-to-end testing will involve direct testing with the meteorological services from Canada and the United Kingdom (UK). The US to UK testing link is of particular importance given that the US and UK weather processing centers constitute the two major hubs for the global distribution of weather data.

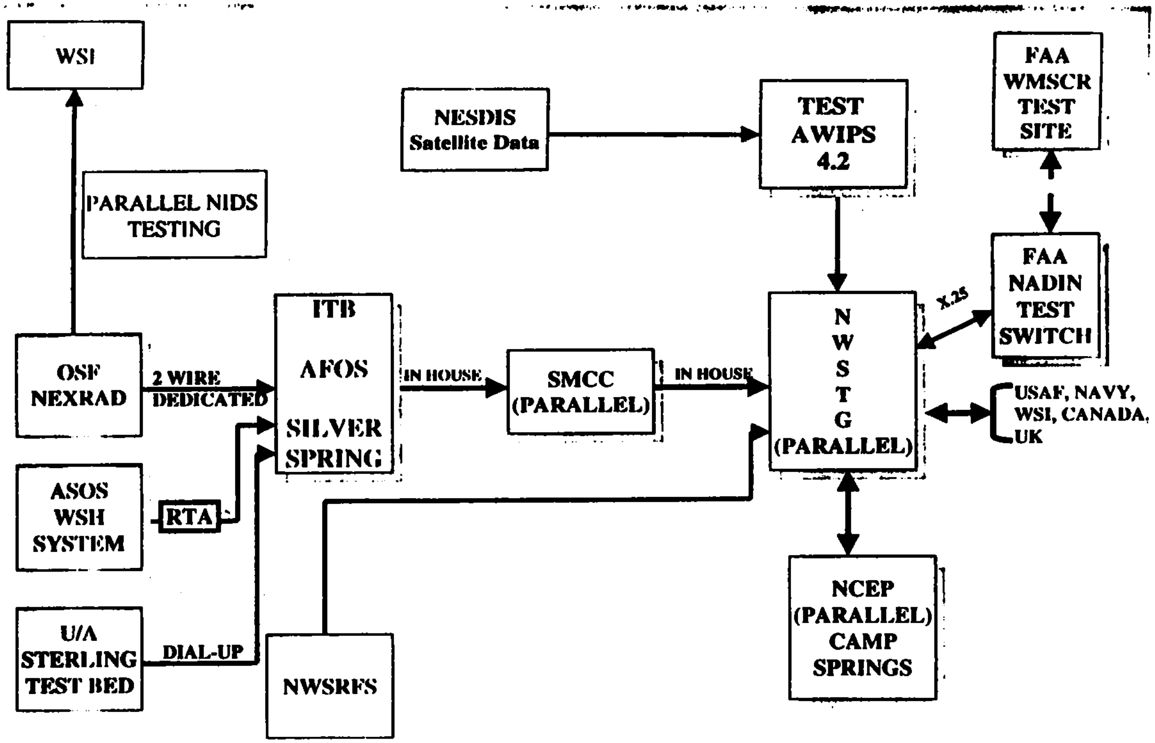
DISTRIBUTION OF WARNING AND SEVERE WEATHER INFORMATION TO THE PUBLIC

In addition to our work with the aviation community, the NWS has also focused on the vital work it does to warn the public of severe weather to ensure that Y2K is not a problem, and we believe it will not be. On a local basis, our field offices distribute warning data to local communities and emergency managers via local analog and digital systems which are Y2K compliant. The distribution of Doppler weather radar data to both our offices and the public will also not be a problem as we transition to the Year 2000 given that the NEXRAD Doppler weather radar system is Y2K compliant.

CONCLUSION

As I have discussed, based upon the successful Y2K testing accomplished to date, the generally non-date centric nature of weather and satellite data products, the partnerships established for the exchange of data, and the planning being done to verify the end-to-end testing of our systems and communications, the NWS along with NESDIS have a high level of confidence in our abilities to continue operations during the Y2K date change with no interruption of services.

Thank you. If you have any questions, I am prepared to answer them at this time.



End-to-End Test Configuration

Statement of David E. Sullivan

President, ZONAR Corporation
2915 Hunter Mill Road, Suite 7
Oakton, Virginia 22124
703-255-3800

Submitted to the Committee on Transportation and Infrastructure
U.S. House of Representatives

September 29, 1998

Mr. Chairman and distinguished members of the committee, thank you for giving me the opportunity to address you today. At the outset, I must admit that I am one of the programmers who contributed to the year 2000 problem back in the sixties. I am also the inventor of a product which provides a sensible contingency solution to this problem.

I wrote my first computer program while I was a student at MIT in 1962 ... and, like everyone else, I used only two digits to express the year. That left 78 characters on the punch cards we then used to express everything else. Things in the computer industry have changed enormously in the thirty-six years since then, with computer hardware becoming cheaper and more powerful, and the software programs that make it work growing larger and more complex. The memory required just to load Microsoft's latest word processing program, for example, would have cost more than thirty million dollars in 1969.[i]

The advances in information technology have not been entirely positive. Computer professionals often joke that if the automobile industry were like the computer industry, a Rolls-Royce would cost $5.00, would get three hundred miles to the gallon, would cross the country in a matter of minutes, and once a year would explode, killing all the passengers!

Having no physical constraints, and obeying no laws of nature, computer programs can be constructed to embody anything that can be imagined ... kind of like the tax code. As a result, computer programs are among the most complex things ever built by man. Computer programs are never perfect, but they are at their worst when they are new. It was a brand new, state-of-the-art baggage handling program, for example, that shut down the Denver airport in 1995 and the new Hong Kong airport earlier this year.

As problems are discovered – almost always by experiencing failures – these programs are corrected; and since software does not wear out, programs literally improve with age. As the world leader in information technology, the United States has the largest inventory of old, reliable, experienced, and well-tested programs ...their only problem is handling years after "99".

We are now in the midst of an effort to fix the entire world's inventory of computer programs in the very short time left before they begin to fail because of Y2K. The current plan requires changing hundreds of billions of lines of old, reliable program code into new, improved, and untested code. Based on computer industry statistics, hundreds of millions of errors will be made in this process[ii], and a large percentage of these errors will not be repaired before these new programs must be put in service to handle Y2K[iii].

The Year 2000 Problem is unique. The deadline cannot be slipped, and there is no fallback. When Denver and Hong Kong had problems with their new airport baggage handling program they were able to use their old airports until they straightened them out. In the case of Y2K, when the new program has problems, it will not be possible to go back to the old one. This will make countless organizations vulnerable to failures which cannot be remedied without a significant, time-consuming effort.

Many of my colleagues – particularly those who are old enough to have contributed to our inventory of legacy applications – are concerned that we cannot achieve reliable solutions to this problem in the remaining time. We are worried that the optimism that characterizes software projects will obscure the very real possibility that our complex of tightly integrated, computer dependencies will become severely undermined. We are convinced that even a very small number of failures, when they occur at the same time, may trigger a chain reaction.

We need a Year 2000 solution which will allow our existing computer programs to function in the coming years without having to make extensive changes which invariably introduce errors. Fortunately, such an approach is available. It comes from looking at the Y2K problem in a new way.

The programs aren't broken. Until now they have been working fine – often for decades. They just weren't designed to handle the change in century. The programs aren't the problem – it's the data! Rather than changing programs to handle future years, we can change the years instead. We can change the values for years to ones these programs were designed for – the 60s, 70s, and 80s. With this method, we can postpone the year 2000 problem until we are truly ready for it.

While this approach is unconventional and provides a temporary solution, it has one very important attribute – it works. It even works when the program's source code is missing or is obsolete. We can use these well-tested programs without modification by merely changing the year. Computers don't know what year it really is – they must believe what we tell them. By subtracting twenty-eight from the real year, we can provide existing computer programs with a calendar identical to the real one. The calendar for 1972, for example, is exactly the same as that for 2000. By using the older calendar, we no longer have to worry about Y2K.

All of us have seen this kind of approach work before. We used it successfully during the gasoline shortage of 1973. As gas prices rose, it became impossible to set the new price on gas pumps designed for an earlier time and a maximum price of 99 cents per gallon. Did we stop selling gas until we could rebuild millions of gas pumps to handle the higher price? No, instead we set the price per gallon to half of the real price. We filled our tanks normally, then doubled the total amount shown when we paid. By "lying" about the price per gallon, we were able to get by until new gas pumps became available.

A number of organizations around the world have already used this "time shift" approach to protect computers against the Y2K problem. We, ourselves, completed a successful pilot test of this solution with the Department of Treasury, Financial Management Service last Fall[iv]. Our AccommoDate™ 2000 product protected their "Check Issue Audit" application against Y2K problems in record time and without requiring program changes. Based on this success, this agency identified this technology as their contingency solution for the continued operation of a number of their existing computer applications. They are, however, among the very, very few organizations that have a way to assure continued, automated operations if their primary Y2K remediation experiences problems.

Professor Freeman Dyson[v] once observed that, "A good scientist is a person with original ideas. A good engineer is a person who makes a design that works with as few original ideas as possible." The "time shift" solution I have described is not complicated or expensive. Typical year 2000 projects using this approach are completed in a fraction of the time and cost of changing the programs. It is certainly easy to understand how it can work – just look at the calendars for 1972 and 2000.

So why isn't everyone using it? Because it is not the way they are used to fixing computer problems. If this were any other situation, we could afford to wait and let them get used to the idea. Max Planck has already determined that, "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it." But these are not ordinary times.

A policy that merely seeks to "do the best with what we have" is not adequate. We must establish a minimum level of reliable systems operation as our goal. This must include all of the systems – government and non-government, foreign and domestic – upon which we depend. We must then use our maximum energies and ingenuity to achieve it.

The time to apply pragmatic solutions to assure the continued operation of our computer software infrastructure is long overdue for the year 2000 problem.

I will be happy to answer any questions the Committee may have.

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[i] Auerbach Computer Characteristics Digest, October, 1969. Supplementary Storage Module 1406 for the IBM 1401 computer – 12,000 characters for $65,085.

[ii] Average of 5% of the program lines changed for year 2000 and average 3% initial error rate produces 1,500 errors per million lines of code renovated.

[iii] Capers Jones of the Software Productivity Research determined in a 1996 study that the average debug process for a Management Information System found and removed only 73% of the bugs before the program was placed in service. Thirty percent of the remaining bugs were found and fixed during the first year of operation.

[iv] Contract TFMS-97-0005: FMS Year 2000 Century Date Change, FMS-Wide Conversion Project.

[v] Freeman Dyson, *Disturbing the Universe*, 1979, Part 1, Chapter 10.

Curriculum Vitae

David E. Sullivan
President, ZONAR Corporation

Experience

Summary

Mr. Sullivan is responsible for all ZONAR activities as Chief Executive Officer, providing general management as well as technical oversight on all ZONAR's projects.

Mr. Sullivan is creator of the AccommoDate™ 2000 product which protects computer applications from the Year 2000 (Y2K) problem without program changes, and he is expert in the development of contingency solutions which assure continued business operations after 12/31/99.

With more than thirty years of management experience in telecommunications, operating systems, and database products, Mr. Sullivan has been responsible for the successful deployment of dozens of computer-based products for both government and industry.

He has also lectured extensively throughout the United States and Canada on "How to Stay Ahead of Technology", and "What You Need to Know About Y2K."

Management Experience

- Founder, President & CEO of ZONAR Corporation, established in 1981
- Founder, Vice President R&D, President & CEO of C3, Inc. (now *Telos*) established in 1968
- Systems Administrator with RCA's Federal Government Marketing Operations beginning in 1964

Technology Experience

- Invented ZONAR's AccommoDate™ 2000 product which allows computer programs to continue operating correctly for decades without modification.

- Developed ZONAR's Information Object (InfObject) technology tool set used to implement information management systems in the real estate industry.

- Designed and managed development of the Real Estate Master Data Dictionary adopted as the standard for information exchange by the National Association of Realtors (NAR).

- Managed the design and development of the Realtor Windows Information Network (WIN) PC product for data and high-resolution, full color photo retrieval for Realtron, Inc.

- Managed the design and development of the Request Management System (RMS) employed by the U.S. Marine Corps to service requests for more than one million personnel records managed by the Corps. The system includes an IBM mainframe and SQL relational database interconnected to multiple PC LAN's with true, distributed processing. Mr. Sullivan had total responsibility, from requirements analysis through design, implementation, installation and support, under a multi-year contract with the Marines.

- Designed and managed the development of the Integrated Document Control System (IDCS) software system used to manage large microfiche document bases in installations throughout North America. This proprietary package provides a full, inverted file structure database, with performance levels exceeding those of alternative configurations many times its size.

- For the U.S. Internal Revenue Service (IRS), designed and managed the implementation of the Wage Information Retrieval System (WIRS) that provided microfilm image and computer data concurrent access and update for the entire United States.

- Provided product design and implementation management for the MICRODISC computerized microfilm retrieval system developed for the 3M Company and sold throughout the United States.

- Developed the INFOCOM controller product INTEL microcomputer firmware used to access Western Union's message network.

- Designed and managed the development of AU100 shared processor data entry system sold and installed throughout the United States.

- Designed and provided lead technical responsibility for the Joint Chiefs of Staff Computerized Message Switch (JCS - CMS) which was operational for more than seven years on the original computer platform.

- Designed and developed operating systems driver program used in RCA Corporation's Random Access Computer Equipment (RACE) and AUTODIN (70X) Products.

Education

BS in Electrical Engineering
The Massachusetts Institute of Technology (MIT), Cambridge, MA., 1964

MS in Technology Management
The University of Maryland, College Park, MD., 1998

Professional Associations

- American Society for Information Science (ASIS)

- Association for Information and Image Management (AIIM)

- The Institute of Electrical and Electronics Engineers, Inc. (IEEE)

Year 2000 Newsletter

October 15, 1997 Volume 1, Issue 1

Success at Treasury

> *"first successful demonstration of any remediation approach at the Financial Management Service"*

AccommoDate 2000™

1789

The Implications

1. ***AD2000™ not only works, it works without source code.*** As part of the test, the team had no access to source files or listings; they worked instead from sample data streams and interviews with users. And still AD2000™ succeeded in protecting the CIA system.
2. ***AD2000™ saves time and resources.*** Once the team got access to the test computer environment, they installed and tested the application in less than one man week. Once the application and datasets were given to the team, there was no further requirement for FMS programmers.
3. ***AD2000™ works on multiple languages.*** The CIA application was written in COBOL and EASYTRIEVE, and it used multiple IBM utility programs written in an unknown language. AD2000™ handled all of these programs without difficulty.
4. ***AD2000™ works concurrently with other activities.*** The work was performed concurrently with the other activities of Treasury's Y2K Project Team — and with the migration of the CIA application to the latest version of OS/390 — with no adverse effects either way.
5. ***AD2000™ is unobtrusive.*** The project barely affected normal FMS activities. In fact, FMS staff spent less time in AD2000™ activities than in meetings on computer access issues.
6. ***AD2000™ is low-risk.*** Installation and testing of the AD2000™ Shell did not disturb production programs, did not require re-education of the users, and did not show any potential for inserting new bugs into the system.

The Tool

AccommoDate2000™ is the Year 2000 solution that does not require program changes. It may be applied for a fraction of the time and cost of conventional methods. It may be used in place of other approaches, or as *insurance* in conjunction with other methods. Compared to any other Year 2000 solution, AD2000™ is lower cost, lower risk and faster.

The Test

During Summer 1997, ZONAR used AccommoDate 2000™ to solve the Y2K problem for one of Treasury's computer systems, the Financial Management Service's (FMS) Check Issue Audit (CIA) application system. CIA provided an ideal test case in two respects: first, the system is similar to thousands used throughout government and industry; second, it embodies a number of Y2K problems unique to Treasury and FMS.

The Results

Thirty days after the application of AD2000™ commenced, the CIA system was correctly processing post-2000 data. This was the first successful demonstration of any remediation approach in FMS, and a conclusive demonstration of the tool's potential.

Herndon Chamber of Commerce Business Outlook September 1998

Y2K—How to Be in Business in 2000!

At our recent Brown Bag lunch series, our speaker was Dave Sullivan, President of ZONAR Corporation. This man knows everything about the Year 2000 "Millennium Bug" – after all, he was one of the programmers who caused it more than 30 years ago! In the early days of computers memory was very limited and expensive, which prompted programmers to use only two digits to represent the year, e.g. "98 for 1998. Dave emphasized that this decision was due to economy rather than stupidity – based on the cost of computer memory in 1971, it would require $30 million just to load the latest version of Microsoft Word.

It's not yet clear how all of the year 2000 problems will occur. Some computers may just freeze, or they may assume that "00" means "1900". This sudden flashback means licenses may expire, mortgages and birth certificates may be canceled, and incorrect interest may be posted. In addition to this chaos, the computers would not recognize February 29, 2000 -- 1900 was not a leap year, but 2000 is! Computer chips are everywhere: in elevators, cars, washing machines, watches, etc. It is very possible that come January 2000, any or all of these machines would not perform correctly. Even the latest computers may have these problems. Dave estimates that there are 600 billion lines of program code worldwide; the price to fix all this is somewhere between $300 billion and $3.2 These days most people are aware of this problem, but the unanswered question is still: how big will it be? Although the United States is about one quarter of the way to solving our own problems, there still has not been nearly enough progress, especially considering the absolute deadline!

So far, the enthusiasm for solving the millennium problem has been low, primarily because many people do not understand the enormous impact the problem will have on them personally. (Some people predict a recession as deep as the one in 1973!). An idea of how these problems may appear can be gained from looking at computer disasters from the past. Computer bugs have caused subway trains to crash (in San Francisco) and rockets to blow up (at NASA), and airports in Denver and Hong Kong have had massive snafus with computerized baggage handling.

Dave Sullivan
ZONAR

A computer bug also caused the recent breakdown of a satellite heavily used by pagers. The year 2000 bug can cause similar, potentially enormous problems.

Although we won't know the extent of these problems until they occur, the failure of just one percent of businesses and other establishments nationwide could be disastrous. Since banks, satellites, payroll, and rent payments are all linked together they all could collapse in a cascading effect. The public's reaction to the problem will also intensify as 2000 approaches -- that's where the "human factor" is important. With the imminent threat of computer and business failure, the stock market could be severely affected by panic selling. There could be a run on banks across the nation by people who, not trusting their credit cards, are seeking cash. These case demands could even exceed the US Treasury's ability to print money.

The ultimate goal is to help people understand that we ride out this problem if we all act prudently. The action items are as follows:

1. First, people need to become aware of the problem, and take action now.
2. Second, this is a business problem, not a technical one.
3. Third, we need to share information on how to solve this problem, and cooperate instead of compete.

The Year 2000 obstacle is a big one, and it will cause problems. We all know that. However, with enough feedback, testing, and cooperation among businesses, this problem can be minimized, and a worldwide crisis can be averted.

STATEMENT BY BRUCE F. WEBSTER
CHIEF TECHNICAL OFFICER, OBJECT SYSTEMS GROUP
CO-CHAIR, WASHINGTON D.C. YEAR 2000 GROUP

BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

SEPTEMBER 29, 1998

TESTIMONY

Mr. Chairman, as well as Mr. Chairman and Madam Chairman of the House Joint Task Force on Year 2000, and distinguished members of your respective committees, it's an honor to appear before you today, representing not just myself but also the 1500+ members of the Washington D.C. Year 2000 Group.

There are many countries today where gasoline costs $2 to $5 a gallon. Where great factories run half-shifts and unemployment has crept into double digits. Where intermittent shortages of various consumer goods cause inflation, long lines, and even government-imposed rationing. Where the power system suffers rolling brownouts, and the water in some cities is not safe to drink without treatment. Where martial law is imposed from time to time in certain areas to help calm domestic unrest.

Now imagine that this is the United States some sixteen months from now.

The Year 2000 crisis is distinct from any challenge that humanity has faced to date. We have spent the past fifty years constructing a complex, planet-wide network—technical, informational, economic, logistical, social, even political—than none of us can completely comprehend or control. It has served us well, especially here in the United States, where its benefits have given us a strong economy. But we have planted and left unchecked in it the seeds of disruption. These flaws may cause a million unpredictable, overlapping errors, big and small, disturbing the flow of information and affecting that which information creates and moves: energy, water, food, freight, raw and processed materials, people, money, and more information.

Let us be clear: the Y2K problem will not bring destruction and death as a hurricane or a war. Nor will it, in my opinion, bring our civilization to a halt, ushering in the post-apocalyptic world found in science fiction and survivalist literature. But that doesn't mean it won't be painful or serious. It will be more than a mere bump in the road ahead or a brief hiccup in a long economic boom. We must not reject all serious consequences because we reject the most severe and improbable. Wishful disbelief and blind optimism won't shield us from the very real and likely consequences of Y2K. In fact, it could well make them worse.

The Cutter Consortium was asked by the International Finance Corporation to assess a specific list of global economic sectors for potential impact by Y2K. They determined the following to be vulnerable: financial services, utility and power industries, telecommunications, manufacturing, industrial and consumer services, social services (including health care and education), food and agribusiness, chemicals and petrochemicals, and hotels and tourism. Cutter also singled out transportation as being vulnerable, even though they had not been asked specifically to evaluate it. In addition, they identified several smaller sectors tied to those above and so also at risk, including mining, cement and construction materials, textiles, timber, pulp, paper, motor vehicles and parts, oil refining, fertilizers and agricultural chemicals[1].

Such sectors face Y2K disruptions in multiple ways and on different levels. First are Y2K problems in corporate information systems that support accounting, administration, operations, business processes, workflow, and external communications. Next are potential Y2K problems in the physical facilities: buildings, equipment, plants, vehicles, sensors, and so on. Legal issues impact not just sharing of information but actual operations; some firms may scale back or shut down operations for a short period around the Y2K crossover to reduce liability. Beyond that are Y2K problems in the infrastructure upon which these firms depend—telecom, utilities, external facilities, and services, not to mention timely deliveries of raw materials, processed goods, equipment, and supplies. Finally, even if a given firm or sector is itself in good shape, it may still be impacted by Y2K problems among suppliers, partners, customers, and government agencies.

When you consider the range of sectors vulnerable to Y2K, the various ways and levels in which they can be affected, and the complex, global, and interrelated nature of many of the sectors, you begin to grasp why there are such concerns about the Year 2000 problem. And while it is good to remember that the duration of most such disruptions will be measured in days or possibly weeks, we need to also remember that it only took a few weeks of work stoppage at one supplier of one key part to cause General Motors to shut down its entire North American manufacturing system, lay off 200,000 workers, lose $1 to $2 billion, and—all by itself—impact the US economy. With Y2K, we may face dozen of simultaneous scenarios like that, all interacting with and intensifying one another. Add in possible disruptions to transportation, infrastructure, and social services, and place it all on top of the weakened global economy, and we may face profound economic and social consequences. Because of that, the Year 2000 problem must be for the next sixteen months the most pressing issue for Congress and the Administration.

I would be happy to answer any questions you or the Committee might have.

Bruce F. Webster (bwebster@osgcorp.com) is Chief Technical Officer of Object Systems Group (www.osgcorp.com) and Co-Chair of the Washington D.C. Year 2000 Group (www.wdcy2k.org).

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[1] "Y2K Impact Report: Economic Sectors", The Cutter Consortium, May 1998.

RAIL AND TRANSIT ISSUES RELATED TO THE YEAR 2000 COMPUTER PROBLEM

FRIDAY, OCTOBER 2, 1998

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, D.C.

The committee met, pursuant to call, at 10 a.m., in room 2167, Rayburn House Office Building, Hon. Bob Franks (Chairman of the subcommittee) presiding.

Mr. FRANKS. [Presiding] Good morning, ladies and gentlemen.

First I would I would like to ask unanimous consent that we leave the hearing record of today's proceedings open for 30 days to allow members to make comments and submit written questions; and, secondly, unanimous consent that we make provision for the Chairman of the full committee, Mr. Shuster, to add a statement to the record of today's proceedings. Seeing no objections, so ordered.

Mr. FRANKS. Good morning. This hearing this morning will be dedicated to the implications of the Y2K problem for the railroad industry and the Federal agencies that deal with railroad issues. We will be hearing from three Federal agencies: the Federal Railroad Administration, the Surface Transportation Board, and the Railroad Retirement Board. We will also be hearing from the Association of American Railroads.

What started as a very simple practice, using two digits instead of four when writing dates in computer programs, has mushroomed into one of the most important information management challenges the Nation has every faced. The Y2K problem demonstrates the degree to which we have come to depend on computers in virtually every facet of our lives. The problem exists in computer hardware, operating systems and system software, as well as in any equipment that contains embedded microprocessors such as fire alarms and telecommunications systems. Anyone who has a telephone or a bank account could be affected.

The Y2K problems has implications of varying degrees of seriousness for the three Federal agencies appearing before us today. The Federal Railroad Administration is responsible for administering and enforcing Federal rail safety laws. Y2K problems could hinder the FRA's ability to track enforcement cases internally and could disrupt its docket management.

The STB is responsible for the economic regulation of railroad rates, practices, and related matters and uses computers for internal communications and docket management.

The Railroad Retirement Board is the independent Federal agency responsible for determining eligibility for and disbursing benefits under the Railroad Retirement Act and the Railroad Unemployment Insurance Act. There are approximately three-quarters of a million railroad retirement beneficiaries who receive monthly benefit checks from the Railroad Retirement Board through electronic fund transfers. Y2K problems could affect the board's ability to maintain records of benefit eligibility.

In addition, since benefits are transferred electronically, even if the board is fully Y2K compliant, if the banks are not, beneficiaries may not receive their checks on a timely basis. We will be interested today to hear from the witnesses from these particular agencies on the status of their efforts to come into compliance in advance of the year 2000.

Today we will also be hearing from the Association of American Railroads. Y2K compliance is a critical issue for the railroad industry. For the larger railroads, dispatching operations that control train traffic are largely computerized. Significant problems in this area could literally shut down the rail network or pose significant safety hazards.

Interchanges of traffic from one railroad to another are monitored through electronic data interchange. Railroads and shippers also use computers to track the location of shipments, and this information is often coordinated with port facilities or other origin and destination points.

Another important issue for the railroads is the degree to which their vendors have achieved Y2K compliance. Without access to critical supplies such as diesel fuel, the railroads could literally be crippled I will be very interested in hearing from the AAR on the steps that are being taken both internally and externally to ensure that safety is not compromised and that the rail network continues to run smoothly on and after January 1st, 2000.

These are very important issues, and I want to thank our witnesses in advance for sharing their knowledge with us today.

Now, I would like to recognize the distinguished Ranking Member of the subcommittee, Mr. Wise.

Mr. WISE. Thank you, Mr. Chairman. And I would ask as well, unanimous consent that the statement of the Ranking Member of our full committee, Mr. Oberstar of Minnesota, be made a part of the record.

[The prepared statement of Mr. Oberstar follows:]

The Honorable James L. Oberstar
Ranking Democratic Member
Committee on Transportation and Infrastructure

Hearing on

Y2K Issues in Railroads and Transit: Will We Get There on Time?

Friday, October 2, 1998

I'm pleased to be here for the second in our series of hearings on the Year 2000 problem, looking at how this problem is being addressed in the railroad and transit industries.

These transportation modes are critical to our Nation's economic health. Railroads carry 34 percent of our freight, and the Nation's transit systems play an increasingly critical role in getting people to work and to school in many of our cities and rural areas.

The Year 2000 problem has two potential aspects. One is the safety risk, particularly if the train dispatching system is affected so that control of trains is no longer reliable. The second is the risk of disruptions in railroad service if railroads cannot keep track of their shipments, their rolling stock, and their crews.

The risk to railroad safety is the particular responsibility of the Federal Railroad Administration, and we will want to see what actions it has taken to make sure that safety is not compromised when the Year 2000 begins. The risk to railroad service is primarily the responsibility of the railroad industry, and we will want to see what actions it has taken to make sure that shippers are served without interruption.

We have often seen how any interruption of rail or transit service has threatened huge economic losses for industry, consumers, and for employees. While we have never had an interruption of service due to a computer problem, that possibility now presents itself with the Year 2000 problem.

I am looking forward to receiving a thorough assessment of how our railroad and transit related agencies and carriers are handling this threat. I am confident that they have the ability to solve this problem, and the preliminary indications that we have are that both agencies and carriers are in fairly good shape in their progress toward making their computer systems Year-2000-compliant.

But we need to assess where we are in solving this problem *now* so that we can find out whether the Congress needs to provide any support for the agencies and the carriers as they work toward solving this problem.

I look forward to hearing from the witnesses today and to hearing what if any action we in the Congress need to take to make sure we have a seamless transition to the 21st Century.

Mr. WISE. Mr. Chairman, I am pleased that the committee is meeting this week and next on the Year 2000 problem or, as it is known, Y2K. I approach these hearings with a little amount of trepidation. I have finally mastered a 5-year-old MacIntosh laptop, I know it can do e-mail, I can't go inter- and intraoffice. I am signed on to an Internet carrier and that is about it. And so these are fairly complex areas that we are into, but they are they are very important, and I think you are quite correct to schedule this hearing.

As I reviewed, the Clinton administration has seemingly established a sensible schedule for solving the problem in Federal agencies. The Office of Management and Budget has sent out guidance to all agencies. The guidance appears to make sense. I keep saying "seemingly appears," because I am no expert on this, and I don't know that anybody is—although I guess we are all becoming. They have established a schedule for bringing computer systems into compliance. In particular, agencies are to identify with their mission-critical systems or determine whether any of them are not Year 2000 compliant and fix the ones that aren't.

After they are fixed, the OMB has set out a process of interest verification and validation, or IV&V, to test whether the fixes that have been made on these systems really work. The agencies that deal with the railroad industry, the FRA, the STB, the Railroad Retirement Board and the National Mediation Board, seem to be in pretty good shape in terms of getting their mission-critical systems Year 2000 compliant. I am going to be interested to see how many of these mission-critical systems there are and what progress has been made in getting them fixed.

I will also be interested in knowing what kind of independent verification and validation system each action has adopted. My understanding is that each agency has a considerable amount of discretion in what sort of IV&V you adopt. We need to know what they are doing so we can assess how sure we can be that it will really work.

The key word I think is "independent." It is essential that the verification and validation process be carried out by someone who is both knowledgeable about the technology and truly independent of whoever did the fix in the first place.

Carriers, of course, are important to this process. Some of the carriers I am sure are well organized and have the problem solved well within the deadline. But there are 550 railroads out there, and we need to know what confidence we can have that all of those railroads are ready.

You also point out another problem that I think could be in some ways most significant, Mr. Chairman, and that is of the Railroad Retirement Board that has a special problem that its operations depend not only on its own computer systems, but on the computer systems of the hundreds of banks that it deals with through electronic funds transfer. We need to know what assurance there are that these banks will be Year 2000 compliant.

Somehow we need to be talking to who is overseeing the banks to make sure that their systems are being fixed and verified. If the Federal Government fails to get these checks out on time to the hundreds of thousands of railroad retirees and widows, we will surely have failed to do our job.

You know, it is a bit ironic, Mr. Chairman, as I look around the committee room at the portraits of the different forms of transportation, this committee particularly through its highway bill, or through its TEA–21 legislation this year, is in the process of building many, many bridges into the 21st century; the only trouble is if Y2K becomes a problem, we may not be able to move anything over them.

Thank you very much.

Mr. FRANKS. Thank you, Mr. Wise.

Mr. Duncan?

Mr. DUNCAN. I have no opening statement.

Mr. FRANKS. Ms. Norton.

Ms. NORTON. No opening statement.

Mr. FRANKS. Mr. Blumenauer?

Mr. BLUMENAUER. Thank you, Mr. Chairman.

I just must say that I am stunned at the technological proficiency of our friend from West Virginia. As the person who will have the last rotary dial phone in North America, I hope to take him aside after this hearing. What little I know about the Y2K problem is I think I would rather be on a railroad passenger train than in the air on the week that we turn the calendar. But I really appreciate your scheduling this hearing, and I look forward to learning from it so that I can maybe get up to the level of some of our more technically proficient members.

Mr. FRANKS. I would thank the members of the committee.

I would like to move now to the first panel of witnesses. We have with us Mr. Donald Itzkoff, who is the Department Administrator of the Federal Railroad Administration; Mr. Lee Gardner, the Director of the Office of Economics for the Surface Transportation Board; Mr. Robert Rose, the Chief Information Officer for the Railroad Retirement Board; and Mr. Jim Gardner, Technology Consultant to the Association of American Railroads.

I would like to thank all of you for attending this morning.

TESTIMONY OF DONALD M. ITZKOFF, DEPUTY ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION; LEE GARDNER, DIRECTOR, OFFICE OF ECONOMICS, ENVIRONMENTAL ANALYSIS, AND ADMINISTRATION, SURFACE TRANSPORTATION BOARD; ROBERT T. ROSE, CHIEF INFORMATION OFFICER, RAILROAD RETIREMENT BOARD; AND JIM GARDNER, TECHNOLOGY CONSULTANT, ASSOCIATION OF AMERICAN RAILROADS

Mr. FRANKS. And, Mr. Itzkoff, if we could begin with you.

Mr. ITZKOFF. Thank you. Chairman Franks, members of the committee, thank you for this opportunity to testify. In summary, I will discuss FRA's internal compliance with Y2K, our outreach with the railroad industry, and the status of the industry's Year 2000 efforts.

I am pleased to report that on August 28, FRA certified to OMB that our information systems have achieved Y2K compliance. Last month, the Department's Office of Inspector General concurred that FRA's mission-critical information systems are Y2K compliant today. Unlike the FAA or Coast Guard, FRA does not operate any computer systems actually managing transportation flows.

FRA's information systems primarily include supporting databases of networks. Nevertheless, our experience in bringing these internal information systems into compliance has enhanced our outreach efforts with the railroad industry.

FRA began to address Y2K compliance issues in 1997 as part of our Safety Assurance and Compliance Program. Last July, we convened a major railroad workshop on Y2K where Deputy Secretary Downey emphasized the importance of preparing for Y2K, stressed the need to share information and stressed the potential disruption of failing to achieve Y2K solutions. The meeting was productive, and we intend to convene a follow-up meeting in early 1999.

In addition, FRA has also requested and received from the major Class I railroads specific reports addressing the status of Y2K activities in coordination with tenant commuter railroads and connecting short line and regional carriers. I ask that a copy of the August 13, 1998 letter of Administrator Molitoris on this subject and responses we have received be made a part of the hearing record.

[The information follows:]

U.S. Department
of Transportation

**Federal Railroad
Administration**

Administrator

**400 Seventh St., S.W.
Washington, D.C. 20590**

AUG 13 1998

Mr. Robert D. Krebs
Chairman, President and CEO
Burlington Northern Santa Fe Corporation
P.O. Box 961052
Fort Worth, Texas 76161-0052

Dear Mr. Krebs:

On July 20, the FRA sponsored a workshop in Washington to discuss Year 2000 (Y2K) issues in the railroad industry. Over 60 participants attended, with excellent representation from across the industry, resulting in a productive initial meeting on this very important topic. Enclosed is a summary report describing the proceedings of the workshop.

FRA has moved aggressively to address Y2K issues affecting our internal operations, and I am pleased to report that earlier this summer we certified the agency's Y2K compliance for mission critical systems under our operational control. As you know, however, increasing attention has focused not only on the response of the Federal Government to Y2K, but on the impact of this issue throughout *all* sectors of the American economy. President Clinton has submitted "Good Samaritan" legislation to the Congress which if enacted would exempt organizations from liability for sharing information about Y2K fixes. Congress is also considering further legislation to identify other Y2K problems and provide necessary additional resources. Railroads, because of the very significant role they play in the economy, are one of the sectors coming under particular scrutiny.

On September 3, the Senate Select Committee on the Year 2000 will hold a hearing on the impact of Y2K on the transportation industry. In preparation for this hearing, and in order to permit me to provide accurate information to the President and to the Congress, I would greatly appreciate your observations regarding your personal involvement in addressing Y2K matters throughout your organization, as well as the status of Y2K assessment, renovation, validation, and implementation activities with regard to both safety-critical and business systems. To the degree possible, any information about the extent to which you are involving employees in identifying potential Y2K problems as well as informing them of the fixes that have been carried out would be helpful. Finally, I would appreciate it if you would describe the extent to which you are coordinating your Y2K activities with tenant commuter railroads connecting short line and regional railroads.

Your voluntary responses will be very helpful to the agency as we prepare in the near term for the September 3 hearing. If asked to testify before Congress, I hope to confirm the reports we have received through our outreach efforts that the railroad industry has the Y2K problem in hand. However, it is important that, if problems exist, they be highlighted so that appropriate resources be allocated to resolving them.

Finally, I have also included for your review Presidential Decision Directive 63, issued by the President on May 22, 1998. This directive implements the recommendations of the President's Commission on Critical Infrastructure Protection to encourage private sector participation in necessary activities associated with protecting the Nation's critical infrastructure from physical and cyber threats. Dr. William Harris gave a presentation on this important issue to the July 20 workshop, and I ask that you review PDD 63 and consider potential partnership efforts to assure the security of the railroad industry.

Thank you very much for your assistance. I look forward to hearing from you.

Sincerely,

Jolene

Jolene M. Molitoris
Administrator

Enclosures

CN

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BY FAXMITTAL

August 25, 1998

Ms. Jolene M. Molitoris
Administrator
U.S. Department of Transportation
Federal Railroad Administration
400 Seventh St., S.W.
Washington, DC 20590
U.S.A.

Dear ~~Ms. Molitoris:~~ Jolene

Thank you for your letter of August 13, 1998, requesting feedback on Canadian National's Year 2000 program in preparing for the September 3 Senate Select Committee hearing. Year 2000 readiness is a top priority for CN and I have taken a close personal interest in our progress. I have assigned responsibility for CN's Corporate Year 2000 initiative to Fred Grigsby, our Vice-President and CIO. Fred keeps me and the CN executive group up to date on Year 2000 progress through regular reporting on all CN internal and business partner aspects of the issue.

CN is on target to complete most components of Year 2000 conversion by the end of 1998, including mainframe computer systems, voice and data communications and embedded systems. Personal computer upgrades are scheduled for completion by mid 1999 through an aggressive change-out program which will ensure full Year 2000 compliance for all desktop computing. CN is communicating with all suppliers, customers, shortlines and tenant commuter services to determine their Year 2000 progress. Emphasis here is on identifying contingency plans where key partners are at risk or where electronic data interchange (EDI) with CN could be affected by Year 2000 issues. We recognize that our lack of direct control over these business partners presents a risk which must be managed as circumstances dictate. For further detail on CN's approach to year 2000, I have attached a brief recently presented to the Canadian Parliament's Standing Committee on Industry.

...2

Our Year 2000 initiative has been given the highest visibility within the corporation through the establishment of an executive Year 2000 steering committee whose members represent each business unit. This group meets monthly to review progress and correct any problems identified. In addition to this group, there are locally appointed Year 2000 representatives spread across the CN system to facilitate remediation efforts in their areas.

CN employees are kept up to date on Year 2000 issues and progress through an awareness program incorporating quarterly desk-drops for general information, and various forms of directed communication for Year 2000 activities that impact specific groups. We encourage our employees to take ownership of Year 2000 issues and to identify all deviations from plan.

We coordinate activities with other class 1 railroads through the AAR, the Railway Association of Canada and through direct communication, as needed. Through established customer contacts we are dealing directly with shortlines and commuter services, and report feedback to the Year 2000 steering committee.

In summary, I am confident that CN has the management processes in place to achieve Year 2000 readiness.

Yours sincerely,

P. Tellier

Paul M. Tellier
President and
Chief Executive Officer

Attachment

cc: Fred Grigsby, Vice-President & CIO

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Yours sincerely,

P. Tellier

Paul M. Tellier
President and
Chief Executive Officer

Attachment

cc: Fred Grigsby, Vice-President & CIO

Remarks to the Standing Committee on Industry

Notes for remarks by

Fred R. Grigsby

VICE PRESIDENT
AND CHIEF INFORMATION OFFICER
CANADIAN NATIONAL RAILWAY COMPANY

at the Standing Committee on Industry

Ottawa, Ontario
April 21, 1998

(Please check against delivery)

Presentation to the House of Commons Standing Committee on Industry

Thank you Madam Chairman, members. With me today is Jim Bright who is our Director of IT Customer Service. He was responsible for ensuring that the Y2K Project was set up and managed properly.

I am pleased to be here today to share with the Committee some of the initiatives we have taken at Canadian National Railway with regard to the Year 2000 Project.

This is not a new subject for CN. Work on addressing the so-called millennium bug began in September of 1996 and within three months of that date, the magnitude of the problem became very apparent. What had perhaps at one time been identified as merely a systems anomaly, was in fact an event which affected every aspect of CN's business and, which if left uncorrected, could conceivably have brought the railway to a standstill for an extended period of time.

This inability to operate would no doubt have had a profound impact on Canada's entire transportation and distribution logistics system - possibly bringing the nation's economy to a grinding halt.

Without sounding like a messenger of doom, I would like to provide members of the Committee with a brief overview of the actions CN has taken to deal successfully with the Y2K problem.

The first challenge for CN was to deal with its main core computer systems. From systems which control the safe movement of trains, to those systems responsible for handling financial, inventory, billing and customer request data - all had to be identified, converted and tested. Part of this process included a complete inventory of all in-house and/or purchased operating systems and software packages. A review was also made of all of CN's data bases. At CN there are some 41 million lines of code - most of which can be found in a very mixed environment of operating systems.

CN contracted with its outside system support suppliers System House and Lafontaine, Gauthier, Shattner (LGS) to convert all the lines of code. To enhance the accuracy, while reducing the cost of conversion by some 60%, the results were subsequently run through CN's own in-house test factory. The mechanical conversion of line codes reduced the time required to complete this process by 50%. As of today, this initiative is 60% complete with a final target for completion of November of this year.

CN has also addressed those systems which control the safe and efficient movement of trains over its nation-wide rail network. This includes the signaling systems, wayside inspection and monitoring systems, all crossing and other warning devices and radio networks - all of which are microprocessor based and could be rendered useless by the date problem.

These are all critical, safety-sensitive systems requiring extensive government certification. Currently CN is identifying each and every piece of equipment it has in its inventory - down to the sub-component level. In addition, highly-specialized test requirements and specifications are being developed. This particular initiative is scheduled for completion by the end of this year.

But beyond its rail network, CN has switching yards, maintenance facilities, electrical shops, locomotives, refrigerated rail cars, buildings with elevators and heat control systems, containers, lift cranes and specialized work equipment. Each of these items needs to be supplier certified, item by item. In many instances this involves contacting the vendors through our legal department and specifically requiring certification of all their products. For those who are not able to comply within a specified time frame, CN finds alternate suppliers immediately. In other instances, depending on the criticality of the product, CN may eliminate preferred supplier status.

As an example, GM, a major supplier of locomotives, is in the process of testing and ensuring every component in CN's highly sophisticated locomotive fleet.

This process of supplier certification is expected to be completed by the end of this year with follow-up risk analysis and actions being taken through 1999.

CN has also addressed its PC-based computer, end-to-end data and voice communications networks - all vitally critical to the storage, retrieval and transmission of information.

At CN, PCs older than 1995 are non-compliant. Therefore our PC asset base must be more current than 1994. Obviously, this has significant cost implications. Fortunately, CN basically deals with one supplier. However, it has forced the company to increase its planned acquisition expenditures over the next two years. Priority is being given to Y2K compliance versus satisfying end-user requirements. This has been difficult for some to accept however, but we are coping.

CN is on schedule to complete end-to-end testing of its entire Canada-wide communications network in conjunction with the Stentor Group.

This is perhaps one of the most difficult aspects of our operations to test and evaluate. Any component in the end-to-end network could cause systems failure. There are no standards or procedures to follow. As a result, we have established an in-house simulation network. This allows CN to ensure all components in the network are similar to those in the test environment.

This extensive exercise is being carried out with a number of our telecommunication suppliers such as Bell to ensure that CN has identified and dealt with any anomalies that might arise.

Over the years, user departments within CN have designed and implemented their own somewhat unique systems, many of which have now become mission critical. For example CN has a daily information bulletin system that is broadcast to operating employees in the field. These bulletins cover such topics as track outages, traffic embargoes or train detours and diversions. This system was developed by the operations department to satisfy their own needs. Today, Information Technology supports this activity. There is also a myriad of other "homegrown" financial and reporting systems throughout the Company.

In light of this, there was some concern that if each of these systems was not fully identified and understood, there was the possibility they would be overlooked.

Since beginning the Y2K project, we have adopted a motto at IT - "If we don't know about it, we can't fix it." The Business must ensure that their home-grown solutions are included. Ensuring these sometimes diverse systems are compliant through testing and conversion is a major initiative on its own.

However, we believe that we have inventoried all of the various systems, have developed a program for dealing with each of them and have initiated appropriate plans for their conversion.

As one can imagine, the task of ensuring that all systems at CN - no matter their function or location - are compliant is a Herculean one. What has made that task somewhat easier is the commitment from CN's top executives.

Mr. Tellier, our President and CEO has been extremely supportive of this project from its inception.

In November of 1997, complete project responsibility was placed under the control of the Chief Information Officer. A Steering Committee, composed of vice-presidents of the various functions throughout the corporation was established to provide direction to, and to monitor the results of, field level representatives who are responsible for specific deliverables.

The Steering Committee meets monthly where progress is analyzed and any slippage is reported directly to the President and the senior executive.

As can be seen, the Y2K project is one which has the direct involvement of the most senior people at CN. In fact, Mr. Tellier has stressed continuously that the Y2K project is the number one priority for CN.

And this leads me to the importance of communications in CN's overall Y2K strategy.

An extensive communication program has been developed to ensure all of our employees are aware and understand CN progress in dealing with the Y2K issue. CN has established specialized bulletin boards on its E-Mail network where employees can find answers to specific questions. This has been augmented by a number of broadcast E-Mail messages directly to all employees.

Working committees overseeing the various aspects of the Y2K project are responsible for informing their own employees. I.T. has its own quarterly newsletter which is sent to every employee. Printed reminders are also included in employee paystubs and articles on the Y2K project have also appeared in CN's internal employees magazine.

CN's external marketing related publication - "Movin" - is used to send information on the Y2K project to the company's customers and suppliers.

With regard to customers, CN is currently modifying or replacing computer systems which it has provided over the years to customers for such activities as equipment ordering or tracing.

The Company has also dealt with its suppliers to ensure that not only are they compliant - but that the suppliers' suppliers are also compliant. Obviously, it is vital that there be a constant and adequate supply of those products and services critical to the continued operation of the railway. If there is any doubt whatsoever, CN will if required, increase its inventories to ensure adequate supply for a full year.

Beyond customers and suppliers there are a host of other partners who inter-relate with the railway. There are joint ventures and subsidiaries. For instance, CN has a considerable investment division, which is responsible for a $10 billion pension fund.

There are also the numerous other railroads - from the mega-giants to the smallest of the short line operators - with which CN interchanges traffic and data on a daily basis.

The intermodal and international movement of freight by other modes - truck and/or vessel - also needs to be addressed. In this regard, CN is currently developing test scenarios with all of its transportation partners. Obviously this is an extremely complex task requiring synchronization and cooperation.

For example, all of CN's interchange waybills (the documentation required to move a piece of railway equipment) are passed along electronically between the various carriers involved in moving a customer's goods. The impact of a failure of any one link in this communication chain could be as severe as if CN's own internal systems did not work.

In closing, I believe that CN is in what one could call the "good to excellent" category. I believe that we have identified and put in place initiatives for every aspect of the corporation's operations. But I still worry about the impact of Y2K.

At CN, things may be in order, but what about the rest of the country or for that matter the North American continent? All aspects of the value chain must be working properly if we expect to manage our way effectively through the upcoming period.

There is a lot at stake. There is a lot to do. But it is not impossible to complete.

It takes a systematic approach - requiring extensive executive support. It takes superior project management by dedicated people. And it takes education, communication, and partnership.

However, I need not remind members of this committee that it is now getting rather late into the game. For those who have not started - my advice is begin immediately. And for those who have already started - go faster.

It can be done because it must be done. The North American economy relies on our collective success.

Thank you for your attention. Mr. Bright and I are available to answer any questions committee members may have.

UNION PACIFIC RAILROAD COMPANY

JERRY DAVIS
PRESIDENT AND
CHIEF OPERATING OFFICER

1416 DODGE STREET
ROOM 1230
OMAHA NEBRASKA 68179-1230

August 28, 1998

Via Fax - 202-493-6009 - and U.S. Mail

The Honorable Jolene M. Molitoris
Administrator
Federal Railroad Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, DC 20590

Dear Jolene:

Attached you will find an updated status of our Year 2000 compliance project. As noted in the report, our project is well under way. We will continue to focus appropriate resources to ensure its success.

Sincerely,

Jerry

UNION PACIFIC RAILROAD YEAR 2000

One of the most critical issues facing our Corporation, as well as our business partners, is the Year/2000 compliance. Because Year/2000 (Y2k) has implications in all areas of our business, ensuring that Union Pacific Railroad and Union Pacific Corporation are Y2k compliant prior to the next century is of the highest priority. Quarterly reports on Y2k issues and progress are provided to me and other top level Railroad executives. In addition, an executive level oversight position has been established to assure success in this effort. The following information includes an overview and a detailed status report on the Union Pacific Railroad's Y2k project.

OVERVIEW

The Y2k compliance project at Union Pacific Railroad is focused in five critical areas and includes software (both internally developed and purchased), hardware, and embedded chips inside equipment and machinery. The Railroad's enterprise-wide project encompasses computer systems and equipment in two data centers and a telecommunications network with thousands of personal computers, 3270 terminals, radios, telephones connected with land lines, microwave, fiber optics and satellite links for data and voice communications spread over 23 states. Equipment containing embedded computer chips includes locomotives, automated train switching systems, computer aided train dispatching systems, signaling systems, computerized fueling stations, weigh-in-motion scales, cranes, lifts, PBX systems, and computerized monitoring systems throughout the company.

In addition to the equipment described above, we are dependent on 72 million lines of code in mainframe systems; over 100 newer client/server applications with eight million lines of code; and millions of daily EDI transactions with customers, vendors and other railroads; plus services from hundreds of service providers. Fortunately, work began early on our Y2k project by starting the research in 1994 and completing an impact analysis of our mainframe COBOL systems in 1995. The Y2k project began in earnest in 1996 and has been a number one priority ever since.

Union Pacific decided the best way to approach this complex enterprise-wide project was to divide it into five sub-projects:

1. Mainframe Systems
2. Client Server Systems
3. User Department Developed Systems
4. Vendor Supplied Software, Hardware, and Embedded Systems
5. Electronic Commerce and EDI Systems

All sub-projects have completed inventory and assessment phases, and have detailed project plans in place. Renovation, testing, and implementation are well under way, and most areas are scheduled to be completed in 1998. In addition to the importance of the five sub-projects listed above, addressing project management issues is vital to the success of the project. These include establishing disciplined project management, providing effective internal and external communications, performing contingency planning, creating documentation, and minimizing risk. A description of project management issues, recent Y2k events, and the five sub-projects follows.

PROJECT MANAGEMENT

Building on Union Pacific's foundation of concurrent planning and project management methodology, a Y2k enterprise approach to project management was developed. The Y2k management processes include committed executive management sponsorship, deliberate project planning, robust measurements, regular project updates, and an adequately staffed Project Management Office (PMO) with experienced personnel.

To provide the necessary management support, project managers are assigned to each of the five sub-projects. For the Mainframe Systems, additional project managers are responsible for the COBOL systems, the Transportation Control Systems (TCS), and the FOCUS Systems. Departmental coordinators are assigned from each department to coordinate their part of the project. The business experts and technical systems experts for every sub-project are vital to the success of the project and are responsible for completing the tasks on time. In addition to the formal project review meetings which are held several times each month, the project managers also meet informally with each of the various teams and individuals.

RECENT EVENTS

July-21-1998 Union Pacific's Y2k Project receives Exceptional, A+ rating: Electronic Data Systems (EDS) completed an independent audit of Union Pacific Railroad's Y2k readiness for General Motors. Some of their comments follow:

> "The Y2k project is number 1 priority with the Union Pacific Corp. The project and Y2k preparedness have the full support of the highest levels of the Corporation."
>
> "Union Pacific has demonstrated full commitment and exceptional processes and documentation to assure Y2k compliance."
>
> "Assessors reviewed management reports, schedules, project plans, and detailed documentation -- both printed and on-line -- and found them to be exceptional."
>
> "Union Pacific has done a very detailed analysis of their suppliers and components and is well on track to contact and evaluate all critical suppliers and components by year end 1998."

"Union Pacific has plans to implement manual systems in case unforeseen situations develop which may impact support of their customer base."

"An exceptional Y2k readiness project is in place. Union Pacific can and should be proud."

COMMUNICATIONS PLAN AND MEASUREMENTS SYSTEM

An effective communications plan and measurement system were established early in the project. The communication plan is coordinated with our employee communications group, public relations, our attorneys, marketing, and the purchasing department. The communication plan includes letters, surveys and follow-up telephone calls to our suppliers, blanket communications to our customers, and completion of the surveys sent to us by our customers concerning our Y2k project. A Y2k Hotline number and Y2k E-mail address were established, and there are internal communications with employees and management.

The measurement system proved to be an indispensable piece of the communications plan. The metrics provide summarized progress reports for executive management and detailed reports for the groups working on the project. Information from these monthly and weekly progress reports is communicated regularly to all the employees through newsletters, Lotus Notes, and our internal web site. Everyone on the team and all the people assisting the team know the current status of each project.

CURRENT PROJECT STATUS

1. **Mainframe Systems** -- Software developed for enterprise-wide mainframe systems is essential to the business. Nearly 80% of these systems have been converted, tested, implemented, and certified Y2k compliant by August 1998, and the rest are on plan to be completed by December 1998.

2. **Client Server Systems** -- Union Pacific has over 100 enterprise client server systems in production or under development. In 1998, a full-time project team was established to assist the application project managers in testing these systems and data feeds to and from mainframe systems that may be using two-digit years. Currently, over 30% of these systems are completed, and all critical client server systems are on plan to be certified Y2k compliant in 1998 and the non-critical systems early in 1999.

3. **User Department Developed Systems** -- This category includes mainframe and PC-based systems developed by internal user departments. Headed by a coordinator within each

area, departments have currently completed over 70% of their systems, with the remainder on plan to be completed in 1998.

4. **Vendor Supplied Software, Hardware and Embedded Systems** -- The Y2k work is not limited to the company's internal systems. Union Pacific continues to contact vendors, governmental agencies, financial institutions, and even competitors to verify that they are prepared. The scope of this project includes vendor-supplied software, desktop, mainframe and server hardware, as well as databases and operating systems.

   Union Pacific is working with connecting shortline and regional railroads via our involvement in various AAR committees. In cooperation with the AAR, Union Pacific is sharing information on the compliance and testing of safety critical components common to the industry. Union Pacific has committed to help fund the development of a shared web site for this purpose, and access to this information should be available in the third quarter of 1998. The commuter railroads running on Union Pacific tracks are included in our Y2k compliance activities.

   We are also asking essential suppliers to inform us of the Y2k status of their internal systems. Our vendors must ensure that their internal systems are compliant so that they will continue to provide products and services to the Railroad beyond the year 1999. In 1998, we have, to date, identified 335 highly critical companies, and our Supply Department currently has responses from over 90% of our critical suppliers indicating they have a solid Y2k project plan.

   All departments are responsible for the equipment and software they purchase, maintain and/or manage. All department heads are personally involved and have completed their inventory and determined which components are critical. Currently, departments are assessing Y2k compliance of their critical items and following up with their critical vendors. The Y2k Project Management Office is monitoring performance against the project plan.

   To assure safety and Y2k compliance, selected critical software, hardware, and embedded systems are being tested by Union Pacific, even if they have been certified by the vendor.

5. **Electronic Commerce and EDI Systems** -- Union Pacific's electronic commerce and EDI systems Y2k project covers all the electronic exchanges of information with customers, vendors, other railroads and banks.

   The railroad industry has agreed on a Y2k EDI transaction standard that will be implemented in late 1998. This standard requires a 4-digit year. Union Pacific is taking an active role with the AAR in testing the new standards with other railroads and trading partners. Since many companies will continue to use 2-digit years, Union Pacific will be able to support older versions of EDI transactions and interpret the 2-digit year to the appropriate century for our internal applications.

CONTINGENCY PLANNING

Another area of focus for 1998 is Y2k contingency planning. We will complete this plan in 1998 and make adjustments as needed in 1999. Currently, we plan to have a Y2k command center staffed 24 hours a day in the fourth quarter of 1999 -- continuing into early 2000 -- for any problems that might occur due to the Y2k. The staff will consist of technical experts to fix or advise "what to fix" if systems fail, as well as knowledgeable representatives from each business unit. Although we expect and have planned for January 1, 2000 to be just like any other day, contingency plans will be ready to implement just in case.

DOCUMENTATION

We are carefully documenting all our work to provide repeatable and demonstrable processes. We are documenting and storing internal and external correspondence and E-mail, all project plans, test plans, test results and test data, progress and status reports, responses to our surveys, and notes from telephone conversations with our key vendors.

BNSF

JEFFREY R. MORELAND
Senior Vice President
Law and Chief of Staff

Burlington Northern Santa Fe
Corporation

PO Box 961052
Fort Worth TX 76161-0052
2650 Lou Menk Drive 2nd Floor
Fort Worth TX 76161-2830
817-352-1350
817-352-7111 Fax

August 31, 1998

Ms. Jolene M. Molitoris
Administrator
Federal Railroad Administration
400 Seventh Street, SW
Washington, DC 20590

Dear Ms. Molitoris:

Rob Krebs asked me to respond to your recent letter about Y2K issues in the railroad industry. You'll be pleased to know that BNSF's efforts to ensure a safe and "seamless" transition of our information and operating systems through year 2000 are proceeding on schedule and that, from our perspective, the level of cooperation among the railroads on this critical issue is excellent.

BNSF's Y2K situation may actually be better than some railroads because our core operating system, known as the Transportation Service System (TSS), is relatively new. You'll recall that Santa Fe started development of TSS in the early 1990s, just as concerns about the Y2K issue were emerging. As a result, the foundation of our system was developed with year 2000 in mind. Furthermore, as we updated TSS and adopted it during 1996 and 1997 for the merged BNSF system, further adjustments were made for Y2K.

The bottom line is that while our company still has work to do to ensure a seamless Y2K transition, at this point the tasks we're facing appear quite manageable. We're shooting for all code changes and testing to be completed by December 31, 1998, so we will have an entire year for addressing unexpected problems that arise with BNSF systems and for supporting industry-wide Y2K projects. We're well aware that the high degree of interdependence between railroads means that if one railroad fails or struggles with Y2K, we all suffer. We'll be doing our best during 1999 to ensure the entire industry, including regional railroads, has their systems prepared for year 2000.

BNSF's Y2K efforts are managed through our Year 2000 Project Office, which is supported by a team of 112 people from across the railroad. These team members are responsible for identifying all potential Y2K issues for their areas of responsibility and also for sharing detailed status reports on our Y2K project within their departments. Our IT people have identified 29,645 "modules" of code for analysis, and we've completed checks on 24,324 modules thus far. Our checks revealed that 4,657 modules required changes for Y2K, and 2,755 changes have been completed. We estimate that all remaining modules requiring code changes will be completed by

November, 1998. While it may sound like a lot of code changes are necessary, this is actually a relatively modest number compared to other businesses of our size.

In addition to code changes, we've identified 2,146 "items" on our railroad with embedded processors, ranging from grade crossing systems to hump-yard systems and telecommunications plants, that need to be verified for Y2K compliance. Of these, we've already determined that 933 items are compliant, 180 are not and need to be made so, and 1,033 still need to be investigated. Investigations will be completed by the end of this year, and all items will be compliant by mid-1999.

To ensure nothing slips through the cracks with this project, we're taking two steps to verify our Y2K work. First of all, we plan to install an isolated test system later this year and then perform integrated checks of all our computer functions. This testing will be completed early enough to allow plenty of time to fix any unforeseen problems that occur. Secondly, we've retained a consulting firm to provide an objective "third party" overview of our Y2K efforts. The consultant's work is already underway, so we'll have plenty of time to address any weaknesses that are identified in our approach or any technical shortcomings that are uncovered.

Our entire senior management team is briefed on our Y2K project monthly, and the audit committee of our board of directors also receives regular status updates. By the time everything is over and done with, we anticipate the total cost of BNSF's Y2K efforts will be about $20 million.

Frankly, during my 20 years in the railroad industry, I've never seen a project that's been analyzed more carefully or approached more thoroughly than Y2K. If you or your staff have any additional questions about our Y2K effort, feel free to call me or BNSF's Y2K project leader, Mr. Ken Crane, at 817-333-5605.

Sincerely,

Jeffrey R. Moreland
Senior Vice President - Law
& Chief of Staff

National Railroad Passenger Corporation, 60 Massachusetts Avenue, NE, Washington, DC 20002 Telephone: (202) 906-3000

Amtrak

George D. Warrington
Acting President & Chief Executive Officer

September 8, 1998

Honorable Jolene M. Molitoris
Administrator
U.S. Department of Transportation
Federal Railroad Administration
400 Seventh Street, SW
Washington, DC 20590

Dear Ms. Molitoris:

Thank you for your letter of August 13, 1998, and the information on the FRA-sponsored workshop in Washington, which discussed the Year 2000 (Y2K) issues in the railroad industry.

Amtrak has moved actively to address the Y2K issues that may be affecting the mainframe business systems, and I can report that the remediation of all mainframe systems are well on the way of being ready for the Y2K calendar change over. Amtrak's Y2K remediation project has been active and staffed since January 1997. The Information Technology Service Center (ITSC) has taken the lead in identifying Y2K issues that apply to the application systems that support our daily business operations.

Amtrak has worked with three companies that specialize in remedying legacy business application systems for the Y2K. In June 1997, the assessment of Amtrak's reservation system (ARROW), which was completed by Bedford Associates, revealed that out of 5000 programs only nine programs required changes to become ready for the Y2K calendar. These changes have been made and testing of ARROW and its communications links to the airlines and travel agencies has started.

The conversions of all other business information are also in progress and on schedule. An inventory and software assessment was completed ahead of schedule in September 1997. The conversion of the Travel Agency Processing system has been completed and the Y2K-ready programs are now ready for implementation into production. This system served as a pilot project for the purpose of validating the Y2K conversion methodology. Amtrak has contracted with IBM and IMR (Information Management Resources, Inc.) to convert the 54 application systems. The two companies were selected through the competitive bidding process for their expertise in making legacy systems ready for the Y2K. Excellent progress on changing the programs is being made by both companies. Many of the affected programs have been converted and are now being tested validating the accuracy of the Y2K-program changes.

Other initiatives are also in progress. For example, the material management system is being upgraded to a Y2K ready version. A questionnaire has been prepared which will be sent to Amtrak's major material suppliers to ascertain their systems readiness for the Y2K. The Finance and Human Resources Departments are soliciting bids for a replacement payroll/personnel system.

Amtrak's Assistant Chief Engineer has initiated the Communications & Signals Y2K Compliance Program. The purpose of this program is to evaluate every device and software process used in the day to day operations of the signal or communications system that is either microprocessor or computer based. Our ITSC Department will contact key vendors requesting certification of equipment that contain embedded computer chips. The electric power companies that supply electric power to Amtrak in the Northeast Corridor have been contacted requesting a certification of their systems' readiness for the Y2K. Responses are being received from the utilities attesting to active Y2K projects and their planned Y2K readiness. So far, no Y2K equipment issues from the embedded computer chips have been identified.

An outside contractor has performed an assessment of the software for the Centralized Traffic Control systems (CETC) and the impact report has been issued. This report identifies all programs that require Y2K related changes including Y2K changes to the operating systems and third party software used by CETC. All modification and testing is scheduled for completion in the first quarter of 1999.

Amtrak has contacted QUALCOMM, the company supplying software for train communication to verify the Y2K readiness of the software supplied by them. Amtrak is continuing with testing the software as a part of the Y2K project for business systems remediation.

IBM who supplies mainframe computer services through the outsourcing contract has initiated a project that identified the computer equipment and software used at Amtrak. Many of computer hardware and software items listed in the document have already been certified Y2K ready by the vendors. IBM and Amtrak are verifying this information through independent testing of the hardware and software components.

In summary, Amtrak has a well-established Y2K project for making the computer systems ready for the Y2K calendar change. Amtrak and expert consultants who specialize in Y2K software conversion staff the project. The Inspector General, the Assistant Chief Engineer and ITSC are coordinating Y2K efforts by sharing information on Y2K conversion activities. Amtrak's business systems conversion project is on schedule and will finish by June 1999.

Please call me if you have any questions or need further clarification.

Sincerely,

George D. Warrington
Acting President and
Chief Executive Officer

cc: Members, Amtrak Board of Directors

NORFOLK SOUTHERN

Norfolk Southern Corporation
Three Commercial Place
Norfolk, Virginia 23510-2191
Telephone (757) 629-2610
Facsimile (757) 629-2306

David R. Goode
Chairman, President and
Chief Executive Officer

August 26, 1998

Ms. Jolene M. Molitoris
Administrator
US Department of Transportation
Federal Railroad Administration
400 Seventh Street, SW
Washington, D.C. 20590

Dear Jolene:

In response to your request for information regarding our Year 2000 (Y2K) effort dated August 13, 1998, below is Norfolk Southern's approach and readiness in dealing with this issue.

Norfolk Southern takes the Year 2000 situation very seriously. Since October 1995 we have had a large active project to address Y2K across our organization. Our initial efforts were concentrated on remediating our business critical mainframe application. Approximately 30 million lines of code in this environment have been remediated, unit tested, and placed back into production. A large-scale mainframe test environment is now in the final stages of being established to allow us to test these applications in a Y2K environment.

From an enterprise perspective, I have appointed our Vice President of Information Technology, Wick Moorman, and Assistant Vice President Corporate, Gene Carter, to lead this effort. On June 24th, I issued a memorandum to all Vice Presidents and Department Heads at our company emphasizing the significance of our Y2K effort (Attachment A).

Our project is staffed by a combination of dedicated IT resources, departmental representative, and on-site consultants. Our Project Management Office is providing direction and guidance to all departments. All business and departmental critical items have been inventoried for our 28 end user departments within Norfolk Southern. We are currently working on our Assessment Phase. A copy of our timeline with major milestone objectives is attached (Attachment B).

We are championing awareness and communication of the Y2K effort within Norfolk Southern by use of our Intranet web site to communicate to all of our NS employees. We have also held Y2K Expos for our employees in each of our three major cities, Norfolk, Atlanta, and Roanoke. These were attended by a significant number of management employees who learned about our internal efforts.

As you may be aware, we are working with the AAR and the other major commuter, shortline, and regional railroads to determine their Y2K compliance status. In addition, we have surveyed our major vendors/suppliers as to their status. We will take appropriate action if required by the responses to our surveys when these are reviewed.

Additionally, the Audit Committee of our Board of Directors is very aware of this issue. We make quarterly reports to this group about our progress on Y2K.

Finally, with regard to Presidential Directive 63, Wick Moorman was in attendance at the July 20th workshop, heard Dr. Harris' presentation, and we are currently reviewing PDD 63 to determine how Norfolk Southern should respond.

If you would like to discuss our Y2K effort with me, please feel free to call me. Should your staff have questions regarding our Y2K effort, please have them contact our Project Management Office, 110 Franklin Road, S.E., Roanoke, Virginia, 24042-0058.

Sincerely,

Attachments

ATTACHMENT A

Norfolk, Virginia – June 24, 1998

J. F. Corcoran
P. N. Austin
D. A. Cox
T. L. Finkbiner
N. S. Fleischman
R. C. Fort, Jr.
J. W. Fox, Jr.
T. J. Golian
J. L. Granum
J. A. Hixon
J. L. Manetta
H. C. Mauney, Jr.
D. W. Mayberry
J. W. McClellan
K. B. McQuade
C. W. Moorman
P. R. Ogden
J. P. Rathbone
W. J. Romig
J. M. Samuels
D. W. Seale
R. S. Spenski
R. W. Stephens
W. C. Wooldridge
J. I. Chapman, Jr.
S. G. Hanes
D. M. Martin
R. C. Steele, Jr.
C. J. Wehrmeister

Norfolk Southern faces a tremendous challenge over the next year in making our critical business processes, including infrastructure, equipment, and system applications, Year 2000 compliant. As you know, I have made C. W. Moorman responsible for the overall enterprise Year 2000 effort. As division heads, you are also essential for the Year 2000 compliance efforts, other than the mainframe remediation, which will remain with IT. You will be accountable for ensuring that all systems, tools, facilities, or equipment that you normally develop, implement and maintain are identified so that Year 2000 compliance can be planned and implemented by your division working with IT.

A Year 2000 project office has been established under the direction of Gene Carter, and with the help of KPMG, will provide your department assistance with these activities. The project office will serve as a center for coordinating policy and response for Year 2000 compliance questions and problems both externally to our customers, vendors, and federal and state governmental entities, and internally to the various departments of this company. The project office will also provide me with status reports on the progress of the enterprise effort.

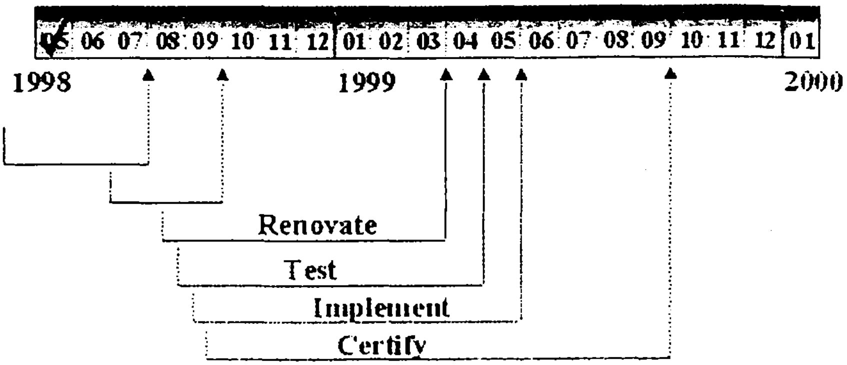
We must act with speed and diligence to protect Norfolk Southern from Year 2000 problems that could significantly affect our ability to continue safe operations, bill our customers, collect our revenue, and pay our employees, and I will expect each of you to report, as of May 31, 1999, that all Year 2000 critical issues in your area have been identified and will pose no problem to our operation January 1, 2000, and beyond.

D. R. Goode

cc: J. C. Bishop, Jr.
R. A. Brogan
L. I. Prillaman
S. C. Tobias
H. C. Wolf
J. E. Carter

ATTACHMENT B

Enterprise IT and Non-IT Year 2000 Timeline



[NSight][Year 2000 Home][Y2K Comments][Site Index]

Created by Year 2000 Team
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CSX CORPORATION
Year 2000 Statement

In 1996, CSX Corporation and its subsidiaries (collectively "CSX") began a comprehensive initiative to address and resolve the potential exposure associated with the functioning of its information technology systems and non-information technology systems (including embedded technology) with respect to dates in the Year 2000 and beyond, commonly referred to as the "Y2K Problem" and the "Millenium Bug".

CSX's remediation efforts are focused first and foremost on the continued safe operation its rail and other transportation systems, encompassing both employees' personal safety as well as the safety of the general public and the environments in which we operate. Maintaining service continuity both to our customers and with our vendors before, during, and after the millenium change is also a high priority. CSX is also taking steps it believes are necessary to insure the efficiency and integrity of our infrastructure and to minimize internal operational interruptions.

Overall, the CSX Year 2000 initiative is currently proceeding on schedule with completion of all key areas expected by mid-1999. The company's Y2K remediation efforts are aligned into five (5) parallel efforts: Core Information Systems, Distributed Information Technology, Electronic Commerce, Non-IT (embedded) systems, and Trading Partners.

The remediation of data center hardware and software is progressing, and a major portion of software and hardware products have been upgraded. CSX anticipates that it will have resolved the Year 2000 issue for all mission critical applications by the end of 1998 and for all non-mission critical applications by June 1999. With respect to distributed information technology, CSX has assigned project managers to assess and remediate its distributed applications with a view to completion by early 1999.

In the area of electronic commerce transmissions, CSX is upgrading its applications to Year 2000 standards as part of its regular application maintenance effort. Because the potential exists that not all of CSX's trading partners will achieve Year 2000 compliance, CSX is preparing to accommodate non-Year 2000 electronic commerce transmissions as well as Year 2000 ready transmissions.

With respect to non-information technology systems, CSX is currently conducting assessments of its rail classification yards, shipping ports, container vessels, intermodal ramps, and office facilities. In July 1997, CSX and its vendor tested CSX's rail transportation dispatch systems for Year 2000 complications and, based on the results of those tests, the vendor has been making upgrades to the systems which are expected to be completed by the end of 1998.

As part of its Year 2000 initiative, CSX is in communication with its significant suppliers, large customers and financial institutions to assess their Year 2000 readiness and expects to conduct interface tests with its external trading partners in 1999 upon completion of internal testing of remediated applications.

In connection with its integration of Conrail, CSX and Norfolk Southern are jointly addressing the Year 2000 compliance of Conrail's core information technology applications and non-information technology embedded systems. Certain of Conrail's operations systems are being made Year 2000 compliant as a contingency in the event that there are delays in the integration or Conrail continues to operate such systems after the integration is completed.

CSX has incurred total expense of $23 million to date related to the Year 2000 issue. The remaining cost of the Year 2000 initiative is presently estimated at $62 million. The remaining cost and the date on which the company believes it will complete the Year 2000 initiative are based on management's current estimates, which are derived utilizing numerous assumptions of future events including the continued availability of certain resources, and are inherently uncertain.

CSX has made Year 2000 readiness a top priority and believes that its planning efforts are adequate to address its Year 2000 concerns. There can be no assurance, however, that CSX's efforts will be successful in a task of this size and complexity. CSX is currently assessing the consequences of its Year 2000 initiative not being completed on schedule or its remediation efforts not being successful. Upon completion of such assessment, CSX will begin contingency planning, including efforts to address potential disruptions in third-party services, such as telecommunications and electricity, on which the CSX's systems and operations rely.

CSX is undertaking all of the activities that it believes are reasonably necessary to be ready for the millennium change. The Year 2000 poses genuine technical problems to the entire world. CSX is keenly aware that its own and its customers' businesses are dependent upon the performance and dependability of CSX's systems. CSX's top executives, management and technical staff are committed to bringing CSX Year 2000 ready sufficiently in advance of January 1, 2000 to permit smooth functioning of all core systems. CSX has a long history of successful operation of its railways and other transportation systems and believes that it is bringing the necessary resources to bear to continue that tradition into the next millennium.

Presently, there are at least four (4) measures that have been introduced in Congress dealing with the Y2K problem. These bills, collectively, provide for the free flow of information between companies by setting standards for when liability will attach, as well as providing for the suspension of antitrust laws to allow businesses to share information about their respective Y2K computer problems. The flow of information between companies and the public did not begin in earnest until July 29th when the Securities and Exchange Commission issued an interpretive release to public companies on making clear disclosures to shareholders about Y2K issues. Although this has shaken some Y2K information loose, it is still not enough. Congress can assist CSX and all other companies first and foremost by passing appropriate disclosure legislation as quickly as possible. Since the time left before January 1, 2000 is finite and decreasing, time is truly of the essence. Lastly, CSX and other companies need protection from frivolous litigation for Y2K failures where they can show that they made reasonable good faith efforts to remediate the problem.

Mr. ITZKOFF.Overall, the Class I railroads, including Amtrak, have acknowledged the significance of Y2K and taken appropriate remedial steps. Coordination between Class I carriers and tenant commuter operators and short line regional railroads, however, requires additional work, and we will concentrate on this task.

Recognizing the increasing profile of Y2K and the strong financial incentives each entity has to solve the problem, FRA has not had to question the veracity or the reliability of the information we have obtained to date. Let me assure the committee, however, that as we continue our monitoring activities, should Administrator Molitoris or I become aware of a Y2K problem with implications for railroad safety, the agency will take immediate and appropriate action under existing statutory authority to prevent unsafe operations from taking place.

Our findings for the freight railroad industry can be summarized in several categories. First, because grade crossing signals are event-driven, rather than time- or date-driven, signal suppliers, railroads, and FRA staff have concluded that grade crossing signals generally do not face systemic Y2K issues.

Second, Y2K issues also do not appear to be major concerns with respect to rolling stock or equipment. Only one-third of the diesel locomotive fleet utilizes microprocessors, and these systems are primarily event-driven.

Third, FRA does not anticipate Y2K problems would affect safety in connection with train control, communications and operating data, and business systems. However, the slowdown that would result from Y2K problems here, if not fully addressed, could indirectly affect safety. FRA will continue to monitor railroad progress in this area to assure that safety concerns are fully addressed.

Finally, with respect to commuter and passenger railroads, Amtrak has identified and validated its Y2K remediation program and expects its dispatch and business systems to be in compliance by the first quarter of 1999. Electric passenger and commuter railroads such as SEPTA and New Jersey Transit and others are working with their respective electric utilities to ensure that they are Y2K compliant, and will be able to provide uninterrupted power on January 1, 2000.

In conclusion, Administrator Molitoris and I are pleased by the progress FRA has made to date in both assuring the compliance of FRA's own computer systems and in working with our railroad colleagues to help assure that railroad operations move seamlessly into the Year 2000. We recognize that significant issues remain ahead as we meet the Y2K challenge, and we look forward to working with the committee over the next 15 months on this issue.

Thank you, and I would be happy to answer any questions that you may have.

Mr. FRANKS. Thank you.

Mr. Lee Gardner, the Director of the Office of Economics for STB.

Mr. LEE GARDNER. Good morning. My name is Lee Gardner. I am here today representing the Surface Transportation Board. I am the Board's Director of Economics, Environmental Analysis and Administration.

Chairman Linda Morgan had planned to be here today, but unfortunately, due to a death in her family, she is not able to do so.

As requested by the committee, I will briefly summarize our progress in addressing Y2K problems as they relate to Board functions and describe outreach efforts that have been undertaken by the Board itself and in cooperation with the Federal Railroad Administration to monitor rail industry compliance.

Since its creation in 1996, the Board has made dramatic strides in utilizing computer technology and electronic media to improve internal and external communications and to increase the productivity of our staff. While computers have enhanced the efficiency and effectiveness of the Board, our increased dependence on this technology makes us more vulnerable to circumstances that might compromise the availability or dependability of these systems. Therefore, Chairman Morgan has made the Year 2000 problem a priority at the Board.

The Office of Management and Budget has set March 1999 as the target date for all agencies to implement solutions and certify compliance with Y2K. The STB will meet that deadline. We have identified two systems at the Board that are mission-critical and three other systems that require modification in order to function properly in 2000. Mission-critical systems are the local area network, including individual workstations, and uniform railroad costing system, or URCS.

Our local area network provides a critical communication link among the staff at the Board and is a vital tool for accessing information outside the Board and providing information to Board constituents and the general public. All of the servers and workstations used for Board business processes have passed Year 2000 compliance tests.

The second mission-critical system at the Board is URCS. This is a set of data programs and procedures used to develop estimates of railroad movement or shipment costs. URCS has widespread application at the Board and is used for making jurisdictional threshold determinations for rail maximum rate cases and evaluating rail abandonment applications. In September of this year, we certified that URCS and all of its components were Year 2000 compliant.

Three other computer systems which are mission-enhancing but not mission-critical have been identified as susceptible to problems associated with the Year 2000. These are our fees and billing system, computer-assisted depreciation and life analysis system, and CASE, a computer database used to track proceedings before the Board. Necessary modifications have been made to CASE to make it Y2K compliant. We are in the validation phase for FAB, which should be certified as compliant not later than November of this year.

Finally, the software that operates CALDAS has been identified as vulnerable to Y2K problems. This system assists the Board in reviewing depreciation studies submitted by eachClass I railroad. We project that CALDAS will be fullycompleted by March of 1999. All of the costs associated withYear 2000 efforts have been funded within our existingbudget.

The Board has also been monitoring the railroad industry's progress in making the necessary upgrades to their systems in order to ensure continuity of rail service and the safety of rail operations. In late 1997, the Board contacted all Class I railroads to assess the potential impact of the Year 2000 problem on their accounting, reporting, and general operating systems. Based on these contacts, we concluded that the railroad industry has made significant progress in developing and implementing plans to eliminate any Year 2000 malfunctions that could threaten safety or service.

In response to the survey, all of the major railroads indicated that all of their systems would be able to deal with the changeover to 2000. We also inquired about the projected costs for required modifications. Cost estimates ranged from 6 million to 46 million per railroad.

The Board has also participated in outreach efforts sponsored by the FRA. In July, the FRA convened a workshop that brought together representatives from the railroad industry, railroad suppliers, rail labor, and government agencies. The purpose of these meetings was to increase awareness of the Year 2000 issue in the railroad industry and provide the opportunity to share information and jointly discuss solutions to problems created by Year 2000. A second outreach meeting is planned for early 1999.

In summary, I am pleased to report that the Board has addressed all mission-critical systems issues related to Y2K and that we will be in full compliance with any remaining issues by March 1999. Further, based on our communications with the railroad industry, it appears that all segments of the industry have been aggressive in identifying Y2K issues and in making the necessary modifications to ensure that the service from and safety of this vital element of our transportation system is not compromised.

Thank you very much, and I would be happy to answer any questions that you might have.

Mr. FRANKS. Thank you, Mr. Gardner.

Mr. Rose, the Chief Information Officer of the Railroad Retirement Board.

Mr. ROSE. Mr. Chairman, members of the subcommittee, good morning, my name is Robert Rose and I am the CIO for the Railroad Retirement Board. I am pleased to have this opportunity to testify about the status of our Year 2000 project.

The RRB is an independent agency in the executive branch of the United States Government which administers the Railroad Retirement and Railroad Unemployment Insurance Acts. Under the Railroad Retirement Act, the Board makes retirement, disability and survivor benefits based on employment with the railroad industry. During fiscal year 1997, the RRB paid $8.2 billion in retirement and survivor benefits to nearly 800,000 beneficiaries.

The agency has designated the Year 2000 issue as its highest priority project. Our primary goal is to complete the implementation of 100 percent of our mission-critical systems by the end of this calendar year, 3 months earlier than the goal established by the Office of Management and Budget. To demonstrate the strength of our commitment to this project, this goal is included as one of our key objectives in the agency's strategic plan. We have also established a goal to complete implementation of virtually all of our non-mission-critical systems by the end of fiscal year 1999.

At this time, we are making very good progress and we are on or ahead of schedule for meeting these goals. The RRB has 124 mission-critical systems, of which 87, or 70 percent, are now Y2K compliant. Those 87 completed include 60 mainframe systems and 27 PC-based systems. All remaining mission-critical systems are scheduled for conversion by the end of this calendar year. Our most recent achievement was the completion of the renovation of all mission-critical systems by September 30th, 2 days ago, as scheduled.

Beginning in January 1999, we are planning a series of comprehensive integration tests for all major information systems. These tests, performed after each individual system has been revised and reintroduced into the production environment, will be geared toward ensuring that all interfaces, connections, and links between the various systems remain fully in sync and fully functional.

We have also developed an inventory of external data exchanges for both critical and nonmission-critical systems. These exchanges are generally conducted with other Federal and State agencies, railroads and financial institutions. We have contacted all of these organizations and, with few exceptions, have developed all required Y2K data formats. In the event that all data received from external sources is not fully compliant before the year 2000, we plan to implement bridge programs which will temporarily reformat the information as required. Most of these bridge programs have already been developed and tested.

In addition to the application systems area, we are also taking action to ensure Y2K compliance in three other areas. First, all proprietary system software packages used in our data center will be tested and certified to be compliant by the end of fiscal year 1999. Second, in the area of desktop computing, we are testing the agency's entire inventory of personal computers for Y2K compliance. The agency's goal is to equip each employee with a compliant PC prior to the end of fiscal year 1999, and funds have been identified in the President's 1999 budget specifically for this purpose. In the third area, which concerns office facilities such as telephones and elevators, we are taking follow-up actions in these few systems found to be noncompliant.

The RRB's most significant external interface—which supports a payment of both Social Security benefits and Railroad Retirement benefits—is with the Social Security Administration. We have a close relationship with SSA and have exchanged test files with them to ensure that these interfaces will work smoothly in the Year 2000. We also exchanged information with the Department of Treasury related to the issuance of benefits checks, direct deposit transactions, return payments and other financial matters.

They serve as the conduit to most transactions between the RRB and the Federal Reserve Bank and other banks. Treasury officials have assured us that no revisions are required in the formats of our file exchanges with them. The RRB does not have any international direct deposit program and, therefore, is not concerned with Y2K banking issues outside of this country. The Department of Treasury has requested that we transmit our monthly benefit file via electronic data communication instead of by tape media to accommodate their Y2K conversion. We are complying with that request and expect a smooth transition in that area.

In summary, we are confident in our ability to achieve the agency's goals for the Year 2000 and that our transition to the next century will offer uninterrupted service and continuous high-quality operations.

Thank you. That concludes my remarks. I would be happy to answer any questions that you may have.

Mr. FRANKS. Thank you, Mr. Rose.

And we will hear from Mr. Jim Gardner, Technology Consultant for the Association of American Railroads.

Mr. JIM GARDNER. Mr. Chairman, the Association of American Railroads appreciates this opportunity to present its comments on the Year 2000 problem in the railroad industry including Amtrak. My background for this testimony is 30 years' experience in the railroad industry, of which the last 10 have been spent in executive positions in information technology.

I have attached a written summary by Amtrak on its efforts with regard to Y2K issues as well. The freight railroad industry, as some have mentioned here, is highly interdependent. Twenty-five percent of all freight traffic and 33 percent of all freight revenue involves interline movements over two or more railroads. In order to do this safely and efficiently, railroads depend heavily on computers both in operations and in information exchange. All segments of the railroad industry thus are very much aware of the critical importance of addressing the Y2K problems and consider it to be their top priority.

Railroads and rail suppliers are engaged at every level in identifying potential problems and preventing them. The major railroads expect to spend more than $250 million doing this. The two critical areas we need to focus on are safety and service continuity.

Our first priority is safety. The industry Y2K efforts in the safety-critical areas address mainframe computer systems, decision support systems, and components supplied by vendors, including embedded devices.

Of particular importance to railroad safety are the industry's signaling systems and grade crossing devices. Research and testing experience shows that these safety-critical aspects of signals and grade crossings do not employ date calculations and are not subject to Y2K problems. However, we plan to continue researching and testing until we assure that every safety-critical component and system will operate properly.

The other area of critical importance is service. The operations of the large freight railroads and Amtrak depend heavily on information technology. Formal efforts to address Y2K problems have actually been underway for several years in the railroad industry. Railroads have developed a four-part process to deal with problems involving, one, inventory; two impact analysis or testing; three, remediation and testing; and, four, contingency planning.

One railroad estimates that roughly 3 to 4 percent of its core mainframe lines of code will need to be remediated. That is the extent of their problem. The AAR believes this is typical of the industry. Within their Year 2000 project offices, most railroads distinguish between their information technology or IT-related work and their enterprise or business work. The IT work, particularly addressing core mainframe systems, began before the enterprise work. We understand that our members, though, expect to complete the great majority of the IT work this year, 1998.

Enterprise work is also well underway, but some of that will stretch into next year. Although most Y2K work is being performed in individual railroads, there are also supportive activities at the industry level.

The North American Rail Industry Year 2000 Coordination Task Force was formed to manage industry-level activities, and includes representatives from both large and small railroads. Because so much rail freight, about one-fourth, as I mentioned earlier, involves movement by more than one railroad, there is extensive interaction among railroad information systems. This has led to the development of various central information system applications at rail link.

This task force has also developed plans for testing these systems to ensure that they will continue to work properly when the millennium arrives. The task force expects most of this testing to be complete this year.

In addition, the information gained by the task force will be offered to all North American railroads, large and small. There is a cooperative effort here.

I thank you for this opportunity to testify before the committee, and I would be pleased to answer any questions.

Mr. FRANKS. Thank you Mr. Gardner.

Mr. Itzkoff, you pointed out in your statement that FRA does not use its computers for any real-time transportation management, and you also pointed out that FRA is on the path to be Y2K compliant. I want to raise an issue that has appeared recently in some media accounts that indicate that some embedded chips may malfunction earlier than 1/1/2000, perhaps as early as 1/1/99 or 9/9/99, because these chips don't recognize either 99 as a digit sequence or 00 as a valid date.

Has this issue been raised in any of your discussions with DOT or specifically at the FRA?

Mr. ITZKOFF. Yes. With respect to our internal systems, we identified 19 different systems in the assessment phase that merited a Y2K review. Seven of those were mission-critical, three were central to our mission, and nine were noncritical. As part of the entire renovation process, we actually did subject all of these systems to the test that you described, such as 1/1/99 or 9/9/99. That was done by our contractor. We have then independently verified it through our information technology staff and then the Office of Inspector General, as I have said, has run an independent verification of our mission-critical systems as well. So I think that we have done that.

The other thing I would say is that our backup plan is a key component in dealing with this, and that is another element that we have pushed forward aggressively on.

Mr. FRANKS. Thank you.

Mr. Gardner, this subcommittee received strong assurances from CSX and Norfolk Southern that their joint acquisition of Conrail would not result in the serious service disruptions that we have witnessed in the case of UPSP.

In your review of those applications, did the Board evaluate the CSX-Norfolk Southern strategies to be Y2K compliant?

Mr. LEE GARDNER. I don't think that was a central issue; however, as part of the approval of that application, the Conrail Transactions Council was established. We have been participating in that council, meeting monthly with representatives from the railroads as well as the shippers, to discuss a wide range of issues, and one of the issues, discussed of course, is the interface of computer systems, not only for business purposes but also for operations.

It appears to us so far, based on the meetings that we have had and discussions that we have had with railroad members of that council, that resolving Y2K problems is something that has been identified as a necessary step to successfully implement this merger.

As was mentioned by Mr. Jim Gardner, the railroads are very interdependent in the sense of movements that occur on more than one system. So it seems like this problem that they might have would be similar. With or without the merger, there would still be issues that would have to be dealt with in terms of coordination of movements and coordination of information. So I think that the work that has been done by the Transactions Council is certainly addressing this area.

Mr. FRANKS. Let me press, if I can, one more time. Mr. Gardner, there are many members of this subcommittee who hail from regions of the country that are serviced by Conrail. We are anxious about how that merger and that acquisition are going to affect service on the ground.

Can you tell us anything more specifically as to the readiness of CSX and Norfolk Southern to make certain that the Y2K issue does not become disruptive of service in the Northeast?

Mr. LEE GARDNER. Well, Mr. Franks, I think that certainly both of those railroads have identified Y2K as a priority for them. And every indication we have is that they are making progress, as are all of the Class I railroads. And I do believe that from what I have observed in meetings that I have attended of the Transactions Council, that this is a very planned and intentional joining or disjoining of these systems, and they have considered every issue and every possible area of concern. And I am confident that Y2K will not be a problem.

Mr. FRANKS. Thank you.

Mr. Rose, the electronic benefit transfer of beneficiaries checks depends not upon only the Railroad Retirement Board to be Y2K compliant but the financial institutions that are used by retirees to access their benefits.

Have you run any tests with those financial institutions to get a sense of the level of preparedness of the financial institutions involved?

Mr. ROSE. We clearly recognize that that is the ultimate problem: Does it go to the individual recipients' banks successfully. We only deal with four international institutions ourselves directly. All the benefit payments go to the Department of Treasury, electronic transfer to the Department of Treasury. Naturally, that doesn't let us off the hook as far as we are concerned. We have had continuing meetings with Treasury for many, many months since we started our Y2K efforts.

First of all, there is no Y2K issue in our transfer. There is no date of reformatting. They do not do any date checking on what we send them. It is not necessary. It is a name, it is an amount, and it is a date of the check. But they assure us that they are dealing with the Federal Reserve and the Boards for the Y2K transfer from them to the banks. And in testimony back in April of this year before our Subcommittee on Appropriations, Treasury testified, or I mean—I beg your pardon—SSA testified, which is in the same mode that we are, as to what they are doing with the Federal Reserve and the Treasury. They were given assurances that the same things that we are—that Treasury is very confident. I have had conversations, as recently as 10 days ago, with our local Treasury officials and they say we are on schedule or ahead of schedule.

We have three other financial institutions we deal with. They are for tax deposits and for the Federal Employees Thrift Savings Program with the National Finance Center. There are no other changes required in those that have—we have already fully compiled with that and tested them. So I think we have done everything we potentially can to ensure the benefit payments.

Mr. FRANKS. Thank you.

We have been joined by a number of members of the committee, and I want to particularly recognize and acknowledge the Ranking Member of the full committee, Mr. , Oberstar for joining. Jim, thank you very much.

Mr. OBERSTAR. Thank you very much, Mr. Chairman. This is a very important portion of our full committee hearings on the Y2K issue. And I think you addressed it very succinctly in saying that there are a great many members who are concerned about Conrail, about Amtrak and other East Coast rail operations that affect about one-third of the Nation's population. And it is important to know where you stand with your compliance initiatives to meet the goal of being fully Y2K compliant as we turn the corner on the next century.

Our last hearing was on the aviation sector—or our first hearing, I guess, the one we just previously conducted—and there we learned that as of yesterday, the FAA is 99 percent compliant. Now they have to test and fully evaluate all of the initiatives undertaken to ensure that the steps taken will meet all potential contingencies. Those matters are now being tested by three different entities. The problem, however, in rail and, as we will hear later, in transit is that so much of the Y2K issue is in embedded chips and embedded technology, but you also—and in fixed systems where it may be more difficult to attack and more costly to attack the problem.

But just as in aviation, you also have the issue in railroading of dispatch centers. And I have visited the Burlington Northern Dispatch Center in Fort Worth, and the Soo Line system as well, and have seen how interrelated and how extraordinarily complex the computer guidance systems are in railroading. And while the number of people at stake is far fewer in railroading than in aviation, the movement of the Nation's freight, our economy is so intimately tied up with railroading that it is absolutely vital for us to know that you have addressed this problem and we will meet the Office of Management and Budget's objectives of all government and industry-related systems being compliant.

It is good to hear the progress that is being made. I want to thank you for being with us today, and I appreciate your testimony.

And thank you, Mr. Chairman, and Mr. Wise, for overseeing this very important economic sector.

Mr. FRANKS. Thank you.

Mr. Wise?

Mr. WISE. Thank you, Mr. Chairman. I am just curious, I see two Mr. Gardners, both spelled the same way. Is this a longstanding railroad family that we have got here, or is this just a ——

Mr. JIM GARDNER. A distant cousin, I think.

Mr. WISE. Mr. Itzkoff, you describe in your testimony the validation testing that FRA has done of its systems starting in July of this year, responding to my opening statement.

Can you tell me how independent this testing has been?

Mr. ITZKOFF. Well, for the mission-critical systems that we have —we have three of them—for example, our local and wide area networks; our Enforcement Case System, which helps us sort the data that our Office of Chief Counsel uses for railroad safety enforcement; and our safety information systems.

We used outside contractors for each of those systems to help with the renovation efforts. Those outside contractors have performed the validation tests and have certified to us directly that those systems are compliant. So we have that on record.

Secondly, FRA staff has independently implemented a testing program on each of these mission-critical systems to assure that they work. Finally, last month, the Office of Inspector General performed an independent verification and assured us in writing that those systems are Y2K compliant. With these mission-critical systems, these are the steps that we have taken. I am confident this illustrates the depth of work that we have done, and that we are Y2K compliant today.

Mr. WISE. What I am trying to understand, and I think you have answered it partly at least through the statement about the IG, but are the people testing the systems independent of the people who did the renovation of the systems?

Mr. ITZKOFF. That is right. First of all, the contractor did the renovation, and they provided the verification. FRA staff did not perform the renovation, but we have validated, independently tested, and the OIG has given us a third layer of assurance. So I am confident that we have taken every prudent step to assure that our systems are in fact compliant.

Mr. WISE. Mr. Lee Gardner with the STB, you mentioned in your testimony the survey done of Class I railroads to assess the Y2K problem, and you conclude from the survey that the railroad industry, and I put that phrase in quotes, "railroad industry," has made significant progress in fixing the problems.

Are the survey results, though, on the over 500 railroads that are not in Class I railroads? What assurances do you have that these smaller railroads are addressing Y2K problems?

Mr. LEE GARDNER. Yes, sir. We have not surveyed the smaller railroads, but the smaller railroads have been included in the outreach efforts that FRA has initiated. They participated in the July meeting, and they will participate in the meeting coming up in early 1999. And I am certain that one of the issues that will be raised in that meeting in early 1999 would be a status report or a progress check on the smaller railroads. Certainly the larger railroads and the smaller railroads are interdependent.

I think your point is well taken that there needs to be some assurance that the smaller railroads will also be in compliance. But up to this point, we have not done any independent surveys of the smaller railroads.

Mr. ITZKOFF. Mr. Wise, if I could add on that point?

Mr. WISE. Certainly.

Mr. ITZKOFF. We have concentrated primarily on the larger railroads, because they have the most extensive signaling networks and business and telecommunications systems, dealing with thousands of people and extending for thousands of miles. They represent the greatest threat in terms of Y2K if they are indeed noncompliant. Smaller railroads typically do not have those kinds of extensive signaling systems, their rolling stock is typically older and, therefore, they do not have the embedded chip technology in most of their diesel fleet.

And even if smaller railroads do face compliance issues, they are smaller organizations. Dealing with hours of service records for 20 operating personnel is different than for 2000. So that is our next step.

You bring up an excellent point here. We will begin to turn to assuring that the information and the outreach extends to the smaller railroads, and we will be raising this as we deal with them for the next 15 months.

Mr. WISE. I appreciate that.

Let me turn to Mr. Jim Gardner with AAR, and continuing along the same line, with your—are you appearing here, of course, representing AAR, but also representing the short lines?

Mr. JIM GARDNER. No, I am speaking on behalf again of the Class I railroads. The coordination of the industry task force I referred to, though, is overseen by the Association of American Railroads, and that is the group that coordinates with all the Class I's and is actively involving short line railroads and sharing information with short line railroads. But I am not speaking on behalf of the short line railroads.

I would echo Mr. Itzkoff's comments. In my experience, at least many of the short line railroads are less dependent on computer technology than on the Class 1's, which doesn't mean they don't have a problem, but the degree to which it could affect total transportation would be smaller than that of the class I's. And they do have programs; the larger ones have programs. I think, though, that the outreach program should go a long way in assuring they are compliant as well.

Mr. WISE. How many short lines are participating in the task force?

Mr. JIM GARDNER. I would have to check to respond for the record on that. I am not familiar with the number of it personally.

Mr. WISE. What I would ask, Mr. Chairman, and I am not quite sure how we get it—I assume maybe we ask Mr. Gardner with the AAR—but I do think that this question of the short lines could become important later on. I appreciate obviously the fact that the Class I's are the ones that are important initially and you want to make sure they are operating.

But we could see some snarls develop in certain areas of the country. And so what I would ask is if—because as I understand it, short lines and AARs are now together in the association—if you would be able to supply additional information about what is being done on short lines, as well as, Mr. Itzkoff and Mr. Lee Gardner, because I thought that we would be hearing from short lines today, and we are not. So I think we need to get more information.

[The information follows:]

ASSOCIATION
OF AMERICAN
RAILROADS

EDWARD R. HAMBERGER
PRESIDENT AND
CHIEF EXECUTIVE OFFICER

October 26, 1998

The Honorable Bob Franks
Chairman
Railroad Subcommittee
House Committee on Transportation &
Infrastructure
2165 Rayburn House Office Bldg.
Washington, DC 20515

Dear Chairman Franks:

Enclosed please find additional materials to be submitted for the record from the Railroad Subcommittee hearing on Year 2000 (Y2K) issues on October 2, 1998. Congressman Wise asked the Association of American Railroad's witness, Jim Gardner, for some information on the efforts of the shortline railroads in addressing the Y2K issue.

As you can see from the attached memorandum, supplied to the AAR by the American Short Line and Regional Railroad Association (ASLRRA), ASLRRA members are aware of the potential adverse impact of Y2K and the need to take appropriate action in a timely fashion.

Sincerely,

Edward R. Hamberger

Cc: The Honorable Bob Wise
Jim Gardner, Railinc
Bill Loftus, ASLRRA

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50 F STREET, N.W. WASHINGTON, D.C. 20001 (202) 639-2400 FAX (202) 639-2286

AMERICAN SHORT LINE AND
REGIONAL RAILROAD ASSOCIATION
The Voice of America's Independent Railroads

William E. Loftus
President

MEMORANDUM:

America's Short Line and Regional Railroads and Y2K

The American Short Line and Regional Railroad Association (ASLRRA) represents 425 short line and regional railroads. The Association has advised its members of the importance of the Year 2000 problem and its potential impact on the railroad industry. ASLRRA members operate in all 50 states, account for 27 percent rail route miles, employ 11 percent of rail workers and generate about 9 percent of all rail revenue.

ASLRRA members are aware of the potential adverse impact of the Year 2000 change in all arenas of the railroad industry, and the need for each company to review the situation and take appropriate action in timely fashion. ASLRRA began alerting the short line and regional railroads about the potential seriousness of the Year 2000 problem in the rail industry in the Spring of 1998 though the following communication tools:

- Task Force - ASLRRA members have joined the Association of American Railroads (AAR) North American Rail Industry 2000 Coordination Task Force established for the purpose of researching, testing, and remediation of systems. The results of their research will be communicated to the rail industry.

- Seminars - Two of ASLRRA's 1998 regional meetings (Southern region in May, and Pacific Region in June) included the "Y2K Issue" as a topic. Speakers from the Task Force presented the Y2K problem and suggested actions that need to be taken by each member of the rail industry. Another "Y2K Update" will be presented by Task Force members at ASLRRA's Finance and Administrative Seminar in November, 1998.

- Correspondence - ASLRRA mailed a memorandum to all of its railroad members in July, 1998, communicating the potential adverse impact of the Year 2000 change on small railroads. This memorandum included an extensive sample Year 2000 project plan which can be used by each small railroad as a guide for developing a plan, and a list of safety-critical computer system components which was furnished to the Association by the Federal Railroad Administration.

- Weekly Newsletter - ASLRRA periodically publishes Y2K compliance articles in its weekly newsletter, *Views & News*, which is mailed to all members of the Association. Examples of critical compliance updates include new information from staff members of the Association, the "National Y2K Action Week" notification, and information about Y2K compliance websites to browse.

ASLRRA serves as the "eyes and ears" of the short line and regional railroad industry. Our mission is to keep all members abreast of any development that may affect their businesses and operations. We have made every effort to assist by communicating the potential adverse impact of the Y2K problem to Association members, by having a representative on the Task Force, and by making suggested compliance aids and materials available. ASLRRA will continue to communicate with its members on this important topic, with the goal of achieving a safe turn of the century for small railroads.

William E. Loftus
William E. Loftus
October 19, 1998

Mr. JIM GARDNER. One additional piece of information.

Mr. WISE. Yes, sir.

Mr. JIM GARDNER. Several of the Class I railroads are, as part of their program, identifying their largest short line railroad suppliers and connections and are developing plans to integrate those folks in their formal planning and testing.

Mr. WISE. Because it is to the Class I's as well, to make sure there is not a Y2K problem somewhere down the line with their suppliers.

Mr. JIM GARDNER. That is correct .

Mr. WISE. Thank you. Thank you, Mr. Chairman.

Mr. FRANKS. Thank you.

Mr. Petri?

Mr. PETRI. No questions.

Mr. FRANKS. No questions.

Mr. Blumenauer appears to have stepped away briefly.

Mr. McGovern? No questions.

Mr. Rahall?

Mr. RAHALL. I have no questions, Mr. Chairman.

Mr. FRANKS. Ms. Johnson.

Ms. JOHNSON. No questions.

Mr. FRANKS. OK. I want to thank the members of the panel very much. Thank you.

Now we will hear from the second panel on transit: Ms. Nuria Fernandez, Deputy Administrator of the Federal Transit Administration; Mr. Peter Benjamin, Assistant General Manager for Finance and Program Development, from the Washington Metropolitan Area Transit Authority; and Mr. Robert Hayward, Director of Management and Information Systems for the Metropolitan Transit Authority of Harris County, Texas.

TESTIMONY OF NURIA FERNANDEZ, DEPUTY ADMINISTRATOR, FEDERAL TRANSIT ADMINISTRATION; PETER BENJAMIN, ASSISTANT GENERAL MANAGER FOR FINANCE AND PROGRAM DEVELOPMENT, WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY; AND ROBERT E. HAYWARD, DIRECTOR, MANAGEMENT AND INFORMATION SYSTEMS, AND CHAIR, APTA INFORMATION TECHNOLOGY COMMITTEE ON BEHALF OF THE METROPOLITAN TRANSIT AUTHORITY, HARRIS COUNTY, TX

Mr. PETRI (Presiding). Excuse us, we are having a littlechange of the guard up here on the committee side as well asat the table.

And I would like to welcome the panel that has just been introduced and to say, in a way kind of setting the stage for your testimony, that there have been some concerns raised that many transit agencies have gotten off to a very late start in addressing the Year 2000 problem. With almost 6,000 transit agencies throughout the United States operating 136,000 transit vehicles, 9,500 miles of track and over 2,600 rail stations, it is clearly imperative that normal operations continue after January 1st, 2000.

In 1995, Americans throughout our urban and rural areas use public transportation 7.3 billion times. Without reliable bus and train service, traffic snarls would last all day long and our highway network would cease to provide the efficiency that we have come to expect. As many transit agencies rely heavily on automated systems to control trains, collect fares and monitor tracks, and provide a variety of comfort and security in their stations, all of these systems are vulnerable to the Y2K bug.

So I look forward to hearing from this panel and hope that the witnesses can shed some light on the part of the Transit Authority in addressing this problem. And before turning to the panel, I don't know, but I would like to ask if the senior Minority member of the Transportation Subcommittee, Mr. Rahall, has an opening statement.

Mr. RAHALL. No, I have no opening statement. Mr. Chairman, I commend you and Chairman Shuster for conducting these vital hearings. It is important that we start now to look ahead and hopefully alleviate many of the concerns that exist. I know it is not our desire to create a doomsday scenario in any of these modes of transportation come the Year 2000, but it is important that we examine and assure the American people that there will be no serious glitches in the systems that run our transportation modes. And I commend you and the Chairman for holding these hearings.

Mr. PETRI. Thank you.

And we will begin with Ms. Fernandez.

Ms. FERNANDEZ. Yes, sir. Good morning, Mr. Chairman, and distinguished members of the committee. My name is Nuria Fernandez. I am the Deputy Administrator for the Federal Transit Administration. And I would like to summarize my full statement that I ask be made a part of the record.

Mr. PETRI. Without objection, it will be.

Ms. FERNANDEZ. The Federal Transmit Administration's mission is to ensure personal mobility in America's economic and community vitality by supporting high-quality public transportation through leadership, technical assistance, and financial resources. FTA has been actively identifying and remedying actual and potential Year 2000, Y2K, problems since 1996. Since FTA began working on Y2K issues over 2 years ago our goals have been twofold; that is, to provide information, guidance, and assistance to the transit community and grant recipients—our customers—and ensure that our own systems become compliant.

We made it a priority to identify problems that would affect our technological interface with both our internal and external customers. Five years ago under the leadership of FTA Administrator Gordon Linton, FTA began working on a next generation of electronic enhancements. All our transit grant recipients have been trained on this new system. Full conversion from our earlier system, which was not Y2K compliant, will occur on November 2nd. The new system is Y2K compliant and FTA grant delivery processing will continue uninterrupted.

Our outreach to industry has been extensive and thorough. FTA personnel have trained and traveled to 30 cities and conducted hands-on training sessions which have attracted 1,200 industry transit professionals, with more sessions underway, until we reach everyone who uses our programs. We have provided copies of our new software to interface with our new computer system to all of our grant recipients.

But managing our grant programs for Y2K compliance is just the beginning. FTA has been leading the industry in creating awareness of Y2K computer problems and readiness. In February, the FTA released a Dear Colleague letter to the transit community, over 4,000 individuals, representing senior levels of all transit grant recipients, and included the full text of the Chief Information Officer Council Subcommittee on Year 2000 Best Practices Manual. The manual outlines a five-step framework for assessing and addressing issues and provides in-depth guidance for dealing with Y2K readiness.

In that outreach, Administrator Linton raised awareness of the problem and shared effective strategies for dealing with the technical fixes. We have reached out to our partners and customers on the evaluation of their own technologies to ensure the system's safety performance.

FTA has distributed software that would allow for the detection of non-Y2K hardware, and we are helping our customers identify weaknesses in potential problem areas. We have also established a partnership with the American Public Transit Association in an effort to provide guidance to our customers. At Administrator Linton's request, the American Public Transit Association surveyed its membership, which includes virtually all of the major transit systems in the Nation. The survey queried the transit community on the status of the Y2K efforts directly related to automated data processing and intelligent transportation systems. The results indicated that 20 percent of the transit systems are now in compliance with Y2K requirements, and most of the rest, we believe, will be in timely compliance.

Our survey also identified one of the main concerns of our customers was that of the need for continued technical assistance. The results from this survey are helping us to provide the response to questions concerning Y2K readiness, as well as identifying areas of particular emphasis for our continuing efforts.

This Sunday, at the Public Transit Association's (APTA) annual meeting in New York, Administrator Linton will be addressing the responsibilities of Transit Board members for oversight of their agencies' Y2K compliance. In another session, Mr. Linton will also be addressing the important role of transit industry suppliers and vendors in assuring their own operations, as well as their products, are Y2K compliant. And the following Tuesday, the Federal Transit Administration, in cooperation with the American Public Transit Association, will be conducting a Y2K transit forum at the conference.

The American Public Transit Association has focused on the information in publications and made sure that it is an important issue on the agenda.

Mr. Chairman, we have included in our Y2K efforts extensive outreach with our own grantees, extensive outreach with the transit industry and the vendor.

Before I close, Mr. Chairman, I would like to highlight the important role this committee and the administration have played in assuring that the transit industry will be fully ready for the 21st century. TEA-21 has afforded us high levels of funding that would provide the opportunity for transit systems to invest and make their systems Y2K compliant.

All of the provisions in TEA-21 that affect Federal assistance programs, Federal transit assistance programs, both for new capital investments, fixed guideways, fixed modernization formula programs, as well as in the rural, elderly and handicapped transit programs, will be eligible for funds to make their systems Y2K compliant. This will give States and transportation providers the resources they need to make technical repairs so that our customers are not caught up in the calendar year 2000 track.

Thank you very much, and I appreciate the opportunity to address any comments you may have or questions.

Mr. PETRI. Well, thank you. And—let's see—Mr. Benjamin.

Mr. BENJAMIN. Mr. Chairman, members of the committee, I am Peter Benjamin. I am the Assistant General Manager for Finance and Program Development of the Washington Metropolitan Area Transit Authority. I would ask that my remarks be entered into the record and I be given permission to make a few summary comments.

Mr. PETRI. Your remarks will be made a part of the current record and I would look forward to your summary.

Mr. BENJAMIN. Thank you, sir.

We at the Washington Metropolitan Area Transit Authority, here in Washington, regard the Y2K problem as a management issue, not just an information technology issue, and therefore it requires the direct attention of our entire management staff. We have organized in order to try and approach it in that manner. We are dedicated to, number one, making absolutely certain that safety is maintained on our system in every way, and that in no way does the Year 2000 problem compromise the safety of our passengers and our employees. We, second of all, want to make absolutely certain to the extent of our ability that we provide uninterrupted passenger service when January 1st, 2000 comes about. And finally, we want to make sure that all of the supporting systems, all of our business systems, also operate correctly so that we can provide the kinds of support to make our system operate properly and support the people who are making it work.

In the operational area, of course, we have to deal with all of the various components of our system, our trains, our fare card machines, our turnstiles, all of the control systems that allow our system to work effectively and efficiently. We also have to look at the infrastructure, the building and the environmental systems, our elevators, our escalators, our air-conditioning, our communications, our ventilation, our lighting, all of the things that support what makes our train system work as well as our buses.

And, finally, we have to look at our business systems, the ones that operate everything else; that is, our payroll, our finance, our human resources system, maintaining our inventory, and make sure that all of those systems provide the support that let the major system work.

We have done this through a 7-step process. We are inventorying all of our systems that use a computer. We are assessing each and every one of those to determine the degree to which there is a Y2K issue and whether or not they are compliant.

As necessary, we are either renovating—that means we are finding a way to make a fix to a system that may have a problem—we are retiring and replacing—meaning we are taking an entire system out of operation and replacing it with a new one—or we are mitigating, we are finding some work-around that allows us either to operate without that system or to make that system work in such a way that that mitigation will minimize any effect on actual operations.

We are then doing validation and testing of those systems, and certifying those systems. And just in case all of that doesn't work, we are also setting up contingency plans as to what we would do if any or some group of systems, for one reason or another, were not operational.

We have done this by setting up a management committee, an oversight committee, that is headed by our Chief Information Officer and that has all of the major managers within the Authority. This oversight committee is working with a whole series of subcommittees that are looking at various systems, operations, and management approaches. These subcommittees are reporting on a weekly basis to our oversight committee, which is then directing our activities. We are reporting on a monthly basis to our Board of Directors as to our progress in dealing with this issue.

We are absolutely certain that we have set up a system that calls for accountability of our managers and makes sure that we have, in fact, looked at everything we can think of that might create a Y2K problem. We are focusing extremely heavily on the issue of safety, to make absolutely certain that our passengers and employees are safe. And, of course, as I said before, we are putting together contingency plans so that if for any reason anything is missed, if for any reason we have not done what we need to do, we have an alternative way of running our system.

Thank you, sir.

Mr. PETRI. Thank you. Mr. Hayward.

Mr. HAYWARD. Good morning, Mr. Chairman and members of the committee. My name is Bob Hayward. I am the Director of Management Information Systems for the Metropolitan Transit Authority of Harris County, better known as Houston METRO. Additionally, I serve as Chair of the Information Technology Committee for the American Public Transit Association.

I want to thank the committee for affording me this opportunity to share some of our experiences in dealing with the Year 2000 problem. Houston METRO is cognizant of the impact we can have on the greater Houston area, and we share this committee's concerns on Y2K and its impact on transit service.

Houston METRO'S systems today provide support for the United States' 10th largest metropolitan transit system, covers a 1,281 square mile service area, deploys 1,360 transit vehicles, employees 3,600 people and serves 110 million boardings annually. Additionally, in partnership with local county and State organizations, we are actively involved in the operation of Houston TranStar, which is the region's state-of-the-art traffic and emergency management center.

Chairman Shuster, Ranking Member Oberstar, members of this committee have toured Houston facilities and Houston TranStar in the last year and are familiar with the size and sophistication of our operation. Houston METRO has completed its Y2K compliance on 90 percent of its mission-critical systems, nonmission-critical systems, networking and communication infrastructures. These numbers do not include embedded technology. Sixty percent of Houston TranStar systems are compliant today and they have approximately spent only $12,000 to date on this project.

Unlike many organizations today that have chosen to renovate systems, Houston chose to replace its systems. In early 1990, we began this replacement process by instituting a corporate long-range plan, and due diligence was incurred for Y2K compliance—excuse me, in early 1997. Success has been attributable to exercising due diligence by forming a committee empowered to deal with the Y2K issues, creating auditable plans, assessing the status of our computer-based systems in creating contingency plans in the event of failures.

As we have been approaching the millennium, most of our vendors have been correcting and installing Year 2000 compatible systems in our facilities, and we have also taken advantage of upgrades along the way to bring our systems into compliance.

Over the next 15 months, our emphasis will shift from being aware of the problem to preparing for survival to ensure that transit services are not interrupted. Houston METRO requires vendor Y2K compliance, and our corporate Y2K committee will be focusing on key issues like continuing to investigate our Y2K vendor status to ensure that supply chains are maintained. We will continue to assess our contingency plans for dealing with unexpected problems. We will prepare for future unknowns like litigation issues, and we will continue to provide testing and upgrades on embedded chip technologies.

We anticipate completing our Y2K conversion for Houston METRO by the end of September 1999. Houston TranStar should be completed by the end of March 1999. Beyond the single resource problems of most people— excuse me, beyond the usual resource problems of finding people, money and time, our single most difficult problem over the past 2 years has been our vendor-client relationship. Due to poorly worded statements of compliance and vendors' unwillingness or vagueness in the sharing of information, our agency has had to increase testing and expand our contingency plans, all of which has increased our delays on ascertaining compliance.

I will conclude my testimony by answering a question on how this committee can best help with this problem. First, I suggest that legislation is enacted to provide liability for protection for those vendors who share information in good faith, but this must in no way relieve vendors from doing due diligence. Secondly, enactment of legislation to provide emergency funding for Year 2000 conversion activities would help ensure success within our industry.

Thank you for the opportunity to testify. I would be happy to answer any questions and provide any additional information.

Mr. PETRI. Thank you. We appreciate the specific recommendations to us and to the Congress as to how we can be helpful in moving through this problem.

Mr. Rahall, any questions?

Mr. RAHALL. I have no questions.

Mr. PETRI. Well, let me turn to the dean in Congress, the Paul Revere here, who has been leading hearings and trying in every way he can to alert our society to this looming problem, and that is our Representative Horn from Long Beach.

Mr. HORN. Thank you, Mr. Chairman. I am impressed by what the Transportation and Infrastructure Committee and its subcommittees have done. It has been a very thorough series of witnesses, and I am very impressed by your statements. What I would like to do is just ask a couple of questions and see if all three of you can answer them.

In terms of the embedded chips in any segment of our society, what some groups are doing, such as the medical emergency people looking at their equipment, they have one common Web site that either the association that pulls them all together starts, perhaps a government agency starts, and they do the following: They look at if there is an embedded chip situation in the equipment, they try to track down the manufacturer, they try to see is there a substitute chip and what can be done to make it 2000 compliant.

Now, is anything like that going on within the transit industry in all its segments?

Ms. FERNANDEZ. Mr. Horn, I will speak for the outreach that the Federal Transit Administration has done with the majority of the transit agencies across the country. What we have heard, particularly from the New York City Transit Authority, which is the largest public transportation provider in this Nation, is that they have encountered some difficulties with the embedded chip, and the difficulty rests in the fact that a lot of the manuals that the suppliers had provided did not identify the chip component as—the chip component in specificity. So they are now going back to earlier manufacturers and determining if they should be repairing and replacing or retiring specific elements of their system as they are concluding their inventory systems assessment.

So that is one difficulty, the actual manuals that were provided.

Mr. HORN. And is that pretty well known then, to get access to those data, within the transit industry?

Ms. FERNANDEZ. The information that the New York City Transit Authority provided to us is information that we will be sharing with the industry as part of our outreach and our best practices, identifying not only how transit systems are undertaking this major challenge but, as they encounter difficulties, making that information available to alert other transportation providers.

Mr. HORN. Mr. Benjamin, Mr. Hayward, what do you do when you are checking the embedded chips out?

Mr. HAYWARD. Mr. Horn we have a 3-step process. The first is to acquire a certification from our primary vendor and identification of the particular problem of any embedded chip technology. Our second is to do all internal testing that we can to certify that in fact the certification is accurate. And then our third step is we will be using outside consulting to come in and provide further certification.

Mr. HORN. Mr. Benjamin?

Mr. BENJAMIN. Mr. Horn, we are doing pretty much the same thing that Houston is doing, and in addition we are talking with other transit authorities that may have similar equipment to make sure that if they have similar or identical equipment, we are coordinating those activities to make sure that we get similar results.

Mr. HORN. There are a lot of different associations, as we know, in this country. Everybody is recognized and has a group in Washington. Let me take the parallel of the short line railroads and what do you do with the very small transit companies? What do you do with the very small anything? Who are they depending on to give them some help?

Ms. FERNANDEZ. Mr. Horn, we at the Federal Transit Administration have been in full contact with the Community Transportation Association of America. It is the association that represents small transportation providers, particularly in rural areas, and of transit services— that provide for transit services. The partnership that we have formed is one not only to jointly promote awareness, but also to provide technical assistance to State DOTs, offices which have offices of mass transit which are responsible, in fact, to administer our small and rural transportation programs. So the awareness facet has been completed.

We are now moving from an awareness to action. We are working together with them to identify those provisions contained within the Federal transit assistance programs that will allow for Y2K-compliant equipment to be eligible under the capital grants.

Mr. HORN. Any comment on that, Mr. Benjamin? Mr. Hayward?

Mr. BENJAMIN. I just note that in the Washington area, the Council of Governments has put together a committee of the chief information officers throughout the area. We are not the only transit operator within the Washington Metropolitan Area. There are many others, somewhat smaller ones, and that committee is assisting with trading information back and forth, both on techniques and on results.

Mr. HORN. So we have had no problem on sharing information? Or have we?

Mr. BENJAMIN. On the issue of certification of components, the problem that seems to be coming up at this point is when you ask for certification from a manufacturer or supplier, they are at this point totally overwhelmed, with lots of people asking the question in a lot of different ways. They are having a problem in terms of responding and not always as forthcoming as we would wish they would be. They are also not always as rapid in their response as we would wish they would be. And finally, because all of us are at different stages with different types of equipment in going through these evaluations, although we are sharing information we aren't always certain that we are sharing matching information.

Mr. HORN. What the hospitals are doing is, obviously, get the actual number on the piece of equipment so you can tell whether this was a recent production or an earlier production and you don't have to reinvent the wheel. Now, do you do that within the transit industry so somebody can dial up a Web site and they get that information, and it is specified so you know what you are dealing with is apples—and not apples and oranges, it is the same apple or it isn't?

Mr. HAYWARD. Both APTA and FTA have created jointly a Web site that is accessible, and the purpose of that is to share this kind of information. Hopefully, that will occur.

Mr. HORN. Well, is it on line now?

Mr. HAYWARD. Yes, sir.

Mr. HORN. OK.

Ms. FERNANDEZ. If I may, Mr. Horn, just to amplify on what Mr. Hayward shared with you, the American Public Transit Association, in partnership with the Federal Transit Administration, has a Web site that is accessible today on Y2K information. And what the Web site does, it affords the opportunity of transit authorities across the country to submit their most—the greatest challenges on the application and the compliance of Y2K on their computerized systems, and it also recognizes that the Y2K compliance issue is not one of a financial system. It takes into consideration areas in the field such as bus maintenance facility systems, looking at them and pump controllers, et cetera. So there is a data base of information that will be available.

Mr. HORN. Well, I understand that but you hear—we talk about the manufacturers besieged with requests across the country. It seems to me if you have a site where the manufacturer could put in the specific specifications that they have produced—now they might be out of business and that is a problem— that is what is going to save everybody a lot of time, including the manufacturer who is being besieged. And I am just simply wondering are we progressing that way, or is somebody over here doing something and somebody over there never talking to the manufacturer?

Ms. FERNANDEZ. The intent of the Web site is also-the American Public Transit Association has a Board of Governors, which is all of the manufacturers that supply services to the transit industry-and the intent would be for them to have their information available on the Web site.

Mr. HORN. OK, one last question.

Federal Government, we ask the agencies to define their critical-mission systems and we don't even look at the rest of it, and all of this—as you know in the Federal Government, they can pull wool over our eyes and then the crunch day will come—but they deal with what is a critical system.

Now, are we doing that at the local level? Are we saying, "Look we can't do everything because maybe it's too late"? In the case of the executive branch here, they just procrastinated for years so they are playing catch-up.

Now a lot of people are in the same situation, especially the small and the rural areas. So what are you doing to prioritize what has to be done versus what is nice and there might just be a little bit of trouble or disruption if you don't do it? Or are you trying to do everything? And how successful are you?

Ms. FERNANDEZ. Let me start, if I may, with what we are doing in the Federal Transit Administration and then what we have asked our grant recipients to do in turn.

In the Federal Transit Administration, we have identified two mission-critical systems. One of our systems is the electronic clearinghouse system, which is the one that in fact releases funding to the grant recipients. The other one is our grant management information system that allows grant recipients to file their grant applications electronically. Those two have been identified as mission critical. We are in the validation stage for completing the testing on those two systems. In addition to that, we have 43 other mission enhancement systems that will be required to be validated and fully implemented by March of 1999.

With regard to our grant recipients, we have asked that they—we have shared with them the best practices manual that we followed, with the five steps for not only assessing but also for validating and implementing, that puts a lot of emphasis on the fact that mission-critical systems, those that affect safety and reliability, and their ability to provide public transportation services be taken into account as a priority.

Mr. HORN. Mr. Benjamin, Mr. Hayward, any comment on that?

Mr. BENJAMIN. The thing that we have done is I believe very much along the lines, Mr. Horn, of what you suggested. We have established safety as the number one criterion. It is our top priority. Any system that we identify in our inventory that could affect the safety of either our passengers or employees is where we put our first focus. After that, it is the continuation of passenger service.

As you know, the services that we provide in the Washington Metropolitan Area are very critical to getting people around this area, and if we were to suddenly stop operating, it would have a major effect upon them. So that is our number two priority. And our number three priority is the business systems and the infrastructure systems that support all of that.

Mr. HORN. Mr. Hayward?

Mr. HAYWARD. I concur pretty much with what Mr. Benjamin has said. We have formed, through our corporate Y2K committee, and taken pretty much the same steps to identify mission-critical and nonmission-critical systems.

Mr. HORN. Thank you, Mr. Chairman.

Mr. PETRI. Thank you.

I really have sort of a general question that doesn't probably require a particular response right at this hearing. But by way of asking the question, I commend to you an article by Ed Gardini who is the Chief Economist at Deutsch Bank Securities, and who is introduced by saying—well, he is not normally a pessimist, in fact he has been a bull—but he thinks there is going to be a worldwide depression starting in 2000 due to people not addressing the Y2K chip problem; that he is convinced there is a disaster in the making, and he criticizes people in the financial world and in government, like us, for accepting general answers rather than getting specific in asking what is being done.

And let me quote. He says, "Institutional investors seem to be satisfied with what they are hearing from chief executives, which is, 'We've got a lot of people working on it and we think we are going to have this thing fixed.'" They should be asking much more specific questions: When did you become aware of the problem? When did you actually start to remediate? How many lines of code do you have? How many mission-critical systems do you have?

What we have to look at is our global systems, electricity, telecommunications, government services, transportation, shipping, manufacturing and distribution. We are trying to do that today and especially, Ms. Fernandez, you and people in the Department of Transportation have to drive this awareness through the system as urgently as you can and get people to not just talk about but actually come to grips with it as efficiently as possible.

I want to commend Mr. Horn again for leading the charge here in the House of Representatives in respect to trying to get people to grapple with this effectively, and I thank all of you for your testimony. I don't know if you care to comment on that at all, but I would be happy to yield the floor.

Ms. FERNANDEZ. Mr. Petri if I may in closing, I just want to make all of you aware that the Administrator for the Federal Transit Administration, Gordon Linton, will be releasing a Dear Colleague letter to all of the transportation providers and vendors in the industry that outlines some specific recommendations where we start talking about moving from awareness to action.

We have a little under 2 years to get this situation under control and I think it is incumbent upon all of us so that we can continue providing a safe, reliable transportation system with safety being our top priority. So in the awareness phase, Mr. Chairman, we feel that we have in fact reached out to the industry and we now are working cooperatively in partnership with the industry to make sure that the action plans, the corrective action plans, any repair, retirement, or replacement of systems is taking place.

Mr. PETRI. Very good. And I hope in their fallback programs, we can operate as much of the system as possible without—if pieces of it aren't functioning— and work around those problems while we fix them, if we haven't fixed them in advance.

Ms. FERNANDEZ. Contingency plans are a requirement as part of the whole corrective action plan.

Mr. PETRI. Thank you all and with that this hearing is adjourned.

[Whereupon, at 11:25 a.m., the committee was adjourned.]

STATEMENT OF

PETER BENJAMIN

ASSISTANT GENERAL MANAGER FOR
FINANCE AND PROGRAM DEVELOPMENT

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

U.S. HOUSE OF REPRESENTATIVES

HEARING ON: Y2K "WILL WE GET THERE ON TIME?"

OCTOBER 2, 1998

Good morning Mr. Chairman and Members of the Subcommittee. My name is Peter Benjamin, and I serve as the Assistant General Manager for Finance and Program Development of the Washington Metropolitan Area Transit Authority (WMATA). I am pleased to share with you our comprehensive program for addressing the Year 2000 problem, and to discuss its impact on mass transit services.

Background

Let me first tell you a bit about our history as one of North America's premier and most successful transit operators. Created by the Congress in 1967 with its consent to an Interstate Compact entered into by the State of Maryland, the Commonwealth of Virginia, and the District of Columbia, WMATA's mission has been to plan, finance, construct and operate a comprehensive public transit system for the National Capital Region. We are especially mindful of our important responsibility in moving the federal workforce with many critical federal employment centers and installations along our rail corridors.

Today, 93.7 miles of the 103 mile Adopted Regional Metrorail System have been constructed and are in revenue service. This includes 76 stations, with seven more presently under construction. We expect our current Metrorail construction program to be completed on time and under budget by 2001. With the use of innovative financing, we succeeded in accelerating construction by five years and saving $600 million of taxpayers' dollars. We are experiencing record ridership with nearly 900,000 average weekday trips on both bus and rail, an increase of 4.3 percent over the past year. As the regional bus operator, we operate and maintain some 1300 buses in our fleet.

Management

We are very cognizant of the importance of addressing the Year 2000 challenge to ensure that we can continue to provide uninterrupted, safe and reliable transit service. Therefore, we have moved with some sense of urgency to put in place the organization, systems, and technical expertise required to implement a Year 2000 compliance plan in advance of January 1, 2000. We are absolutely committed to responsible and timely resolution or remediation of the Authority's Y2K issues, and are working diligently to avert any operational or safety consequences from the Year 2000 problem.

To quote the Chair of the President's Council on the Year 2000, John Koskinen, "The Y2K 'millennium crisis' is not an IT (or information technology) problem; It's a management problem." Clearly, this is the thrust and emphasis WMATA is placing on this issue. Management, from the General Manager on down, is involved in WMATA's Year 2000 effort. Our Board of Directors is keenly aware of this issue, too, and is providing additional oversight and support.

The transit industry is focusing attention on the Year 2000 problem, and WMATA has benefited greatly from all of the awareness-building activities of the Federal government, the American Public Transit Association, and others. We also share information with other transit operators across the nation, and are actively coordinating with regional and local jurisdictional entities on shared concerns and contingency planning. WMATA is, for example, involved with the Year 2000 efforts sponsored by the Council of Governments (COG). Our Chief Information Officer is a member of the COG Information Technology Group, as are members from jurisdictions throughout the metropolitan area. The focus of this activity is on Year 2000 issues, and the implications within the Washington area.

Priorities

WMATA's priorities are threefold:

First and foremost is safety. WMATA's reputation throughout the transportation industry is that of one of the safest transit systems in the nation. WMATA is committed to continuing its long-standing emphasis on safety. All Y2K activities are, therefore, guided by safety as their primary priority.

WMATA's second priority is to sustain uninterrupted passenger service. WMATA takes pride in being the Nation's Capital transportation provider. We are critical to carrying out the commerce of this region, carrying 40% of the peak period travelers to the downtown area. Tourists from across the country and around the world depend upon WMATA's convenient and reliable service to visit the seat of our nation's government. The elderly depend upon WMATA for a low-cost, safe and reliable means to get to the doctor. WMATA is committed to continuing this reliable passenger service, uninterrupted by the arrival of the next century.

Our third priority is to ensure uninterrupted business operations. WMATA is not only a transportation services provider. WMATA is also a business. WMATA performs many traditional business functions, such as payroll and human resources, just as any major company would. WMATA's third priority, therefore, is to ensure that all of our business operations continue smoothly and without interruption.

Y2K Status

Like many other industries, WMATA's business systems are currently further along than other systems. This is not surprising due to our early emphasis in this area. When the Year 2000 issue was "discovered" in the information technology arena, everyone thought the problem was one related exclusively to the domain of computers and computer programmers. Everyone assumed the computing staff would "take care of the problem and let us know when it is fixed." As such, the initial thrust in everyone's Y2K efforts was directed to obvious computer systems and programs.

We all now realize the issue is more widespread than just business applications and business computers. The world has discovered potential date-sensitivity issues in many less obvious areas such as elevators and building environment controls. For WMATA, this realization refocused our energies into our operational systems such as fare boxes and rail equipment. With the priority now given to the operational aspects of WMATA, we expect this area to move swiftly toward compliance.

The scope of the Year 2000 issue for us appears very broad. However, the scope is limited when one considers only those systems using dates. A system may use time, but if it does not use the date, then it does not pose an immediate Y2K problem. The "modernization" of these systems can be undertaken at a much more deliberate pace.

Another factor that minimizes the effort is age. In this instance, older equipment and systems are somewhat less likely to contain any date-sensitive components. Although we still have to confirm on an individual item basis that this is the situation, in fact, no further Y2K effort is required of many of these older systems.

We can categorize our effort into three major areas:

The first component is operational. WMATA must ensure such diverse systems as trains, fare card machines, turnstiles, relay switches and sensors, safety systems, control systems, and others, are free from any unexpected consequences caused by the new millennium.

Our second area for Y2K consideration is business systems. As a business, WMATA must evaluate its payroll, finance, human resources, inventory control, real estate programs, electronic mail, and the like to ensure that they will perform correctly before, during and after the Year 2000.

The last area is WMATA's building and environmental systems. WMATA's riding public and our employees depend upon the 201 elevators, 543 escalators, heating and air conditioning systems, communications, ventilation, lighting, and other environmental systems to ensure their riding comfort and safety. We must be certain that these systems, too, function as necessary at midnight December 31, 1999.

One question that we are frequently asked is, "How do you Y2K certify WMATA?"

We are undertaking a detailed and highly rigorous seven-step process:

Inventory: WMATA has established a process designed to identify every key item that may be Y2K non-compliant.

Assessment: Assessment is the process of evaluating an item for possible Y2K symptoms. This is a strict process, following procedures unique for each item to be tested. Initially, the original manufacturer of the system or component is contacted, in writing, to request their Y2K information on the product. To date, we've contacted over 180 suppliers. We are making no assumptions about the assertions of the suppliers. We are also testing items which, on the surface, appear to be identical but which we suspect may have been repaired using slightly different components than those found in other items deemed compliant.

Renovation/retirement/mitigation: If a symptom indicative of a Y2K problem is detected during assessment, it can be addressed using one of three different methods. The first is *renovation*, whereby an existing item is changed to eliminate the problem. For example, our payroll system which did not contain Y2K compliant dates was simply upgraded. The second method is *retirement*. Using this method, older and obsolete programs are removed from usage, and replaced by newer programs that are already Y2K compliant and offer improved functionality. The last method is *mitigation*. This method addresses those Y2K issues that cannot be corrected in time or may be beyond WMATA's control. An example of this method might involve working with banks on automatic payroll deposits. WMATA could create a temporary interface program to handle this problem until the bank is prepared to accept Y2K compliant data. The Y2K issue in this example, although not completely "resolved," has been mitigated from WMATA's perspective.

Validation/test: Validation and testing is a method to ensure a system is, in fact, Y2K compliant. Different items within the WMATA inventory will require a different method for testing. WMATA is, therefore, creating a test process for each item.

Certification: Certification means evaluating the results of the assessment and validation/test to determine that the item is indeed Y2K compliant—yet another layer of review designed to verify the technical work has been performed according to prescribed procedures.

Implementation: Implementation simply involves placing the system in question back into normal usage. Using the payroll example, the newly-compliant system would be placed back into regular use once certification has been performed. This is an important phase as it further helps to ensure that there will be no operational mysteries or surprises come January 1, 2000.

Contingency planning: Throughout the process, WMATA is devising contingency plans to guarantee that our top priorities are met: uncompromised safety, constant service, and uninterrupted business operations. Even after a system is certified, we build a contingency plan just in case something unexpected were to happen.

Various items within the WMATA inventory may be at different points along this phased time line, depending upon the time it takes to accomplish each phase for that item.

This might be a good point to note that two fundamental approaches exist for becoming Year 2000 compliant. One is to identify systems that have an impact, and to correct that system to remove the impact. Using this method, you essentially end up with the same system or functionality, but with any Year 2000 impact removed.

A second approach to eliminating any potential Y2K issue is to replace systems over a planned period of time. This means that, once a system is recognized as having a Y2K issue, planning a replacement cycle for that system that would incorporate new hardware and software that was already Y2K compliant. While we have endeavored to do both, our primary focus now is on achieving compliance in a timely manner. With each passing day, large system replacement becomes less possible.

Organizational Structure

WMATA clearly recognizes the Year 2000 issue requires management initiatives, not just technical ones. As such, WMATA's Chief Information Officer is responsible for monitoring all day-to-day Y2K activities and serves as our General Manager's focal point for all Y2K issues. We have also created 12 management committees to provide the necessary oversight and management of various aspects of the program.

For example, we have established an Operations, Process Control and Embedded Systems Committee that has responsibility for identifying, evaluating and correcting any issue that may arise related to embedded chips. Similarly, we've identified a Communications Committee responsible for identifying, evaluating and correcting any issue that may arise within WMATA's communications infrastructure.

A number of committees are designed to address not technical issues but, rather, management issues. For example, we have a Safety and Security Committee to ensure our number one priority, safety, remains in the forefront, and a Funding Committee to handle any unexpected funding needs that may arise related to Year 2000. We are also using consultant assistance to augment staff efforts and to draw upon expertise not available in-house.

All committee activities are monitored by the Oversight Committee. This committee provides the overall oversight and tasking of all committees, and receives weekly input from each committee. The Oversight Committee generates weekly updates and reports directly to the General Manager. Additionally, we report monthly to our Board of Directors.

WMATA also recognizes that we are not an island, working independently of the world around us. WMATA is a partner in the regional infrastructure serving all of the needs of the Washington metropolitan area. While we provide exemplary service to the public, we are also the consumer of many services provided by other suppliers. These other providers, such as power utilities and telephone companies, are an integral part of the overall success of our own Y2K program. As such, we have an ongoing and aggressive activity to contact these outside suppliers to determine their Y2K readiness.

This illustrates one of the significant challenges we face though. WMATA needs, and has requested information from many outside companies and suppliers. Our experience, along with others, is that other companies are slow to respond, or even refuse. Although we certainly do not know every company's motive, a few facts are certain to be contributing to this problem.

Many companies are being inundated with requests from many parties besides WMATA. WMATA has been the recipient of such requests, and can understand the effort it takes to answer each one. Secondly, each request is different and each response must be custom-tailored. This is time consuming and costly. While we are doing everything within our means to achieve total Y2K compliance in our system, we are also dependent upon others to meet our needs for information and assistance in a timely and meaningful manner.

Conclusion

To sum up, the Washington Metropolitan Area Transit Authority is very aware of the Year 2000 'crisis.' We have an aggressive management program designed to act quickly in accordance with our priorities: safety, sustained quality service, and uninterrupted business operations. We are confident that we are up to the task, and are making every effort to complete this important mission on time.

Statement of Nuria Fernandez
Deputy Administrator, Federal Transit Administration
Before the
Committee on Transportation and Infrastructure
House of Representatives
October 2, 1998

Mr. Chairman, Mr. Oberstar and distinguished members of the Committee, My name is Nuria Fernandez, Deputy Administrator of the Federal Transit Administration. I am accompanied today by Mr. Edward Thomas, FTA's Associate Administrator for Research, Demonstration and Innovation.

The Federal Transit Administration's mission is to ensure personal mobility and America's economic and community vitality by supporting high quality public transportation through leadership, technical assistance and financial resources. FTA has been actively identifying and remedying actual and potential Year 2000 (Y2K) problems since 1996.

Since FTA began working on Y2K issues over three years ago, our dual goals have been to provide information, guidance, and assistance to the transit community and grant recipients --our customers— and ensure that our own systems become compliant. We made it a priority to identify problems that would affect our technological interface with both our internal and external customers.

As the Committee may be aware, one of the principal interactions between FTA and transit providers is the management of our various grant programs for capital and operating assistance. While FTA does not directly operate transit systems - that is the responsibility of local authorities and their Boards of Directors --we have taken the leadership in utilizing modern technology to reduce paperwork, simplify our interactions with our customers and manage our programs efficiently. Since 1988, together with our customers, we have used electronic systems for management of all of our major grant assistance programs. These programs reduced the time to process and award grant applications and significantly reduced paperwork for our grant recipients and us.

Five years ago, under the leadership of FTA Administrator Gordon Linton, FTA began working on the next generation of electronic enhancements. Our new system, developed carefully and with input from transit grant recipients, utilizes graphical user interface -- GUI -- technology providing point and click "Smart" selections that aid the grant recipients with their business process for submitting applications and management reporting of their grant programs.

We will demonstrate TEAM, the Transportation Electronic Award and Management System- to thousands of transit policy, management and operations personnel at the American Public Transit Association Annual Meeting starting October 4. All of our transit grant recipients have been trained on this new system. Full conversion from our earlier system, which was not Y2K compliant, will occur on November 2.

TEAM is Y2K compliant and FTA's grant delivery process will be uninterrupted.

Our outreach to the industry has been extensive and thorough. FTA personnel have traveled to 30 cities to conduct hands-on training sessions, which have attracted over 1200 transit industry professionals - with more sessions underway until we reach everyone who uses our programs. We have provided copies of the TEAM software to all of our grant recipients.

But managing our grant programs for Y2K compliance is just the beginning. FTA has been leading the industry in creating awareness of the Y2K computer problems and readiness.

In February, FTA released a Dear Colleague Letter to the transit community -- over 4000 individuals representing senior levels of all transit grant recipients -- and included the full text of the Chief Information Officer Council Subcommittee on Year 2000 Best Practices Manual The Manual outlines a five-step framework for assessing and addressing issues provides in-depth guidance for dealing with Y2K issues.

The five steps are:

- Awareness – Informing others of the importance of addressing and planning for potential technology problems brought on by the calendar year 2000.
- Assessment – Identifying all information technology (IT) system, solutions, costs, and schedules.
- Renovation – Correcting all non-year 2000 compliant IT issues.
- Validation - Testing all non-year 2000 compliant IT issues.
- Implementation- Incorporating all year 2000 compliant IT systems into production.

In that outreach Administrator Linton offered the transit community further information from our technical staff on these efforts.

We have continued to address Y2K issues with transit grant recipients on a number of fronts:

- FTA distributed software that will allow for the detection of non-Y2K compliant hardware, helping our customers identify weaknesses and potential problem areas.

- FTA established a partnership with the American Public Transit Association (APTA) in an effort to provide guidance to our customers.
    - At Administrator Linton's request, APTA surveyed its membership, which includes virtually all of the major transit systems in the nation. The survey queried the transit community on the status of all Y2K efforts directly related to Automated Data Processing and Intelligent Transportation Systems. Results indicate that 20 percent of the transit systems are now in compliance with Y2K requirements and the most believe they will be in timely compliance. Our survey identified one of the main concerns of our customers was for more technical assistance. The results from this survey are helping us to provide the response to questions concerning industry Y2K readiness as well as identifying areas of particular emphasis for our continuing efforts

  - On Sunday Administrator Linton will be addressing the responsibilities of Transit Board members' for oversight of their agencies' Y2K compliance. In another session, Mr. Linton will address the important role transit industry suppliers and vendors play in ensuring their own operations as well as their products are Y2K compliant.

  - Next Tuesday FTA and APTA will be conducting a Y2K Transit Forum at the APTA Annual Meeting to provide Y2K assistance to members of the transit community.
  - APTA has also agreed to focus on Y2K information in their publications and include it as an agenda item in their Executive Board meetings. In fact, we expect the Executive Board to approve today the formation of a special task force for transit Y2K compliance.
  - FTA, our colleagues at the FRA and APTA will be co-sponsoring a Y2K Awareness Seminar in Houston early next year. A similar cooperative session is being planned with the Federal Highway Administration and its state technology offices.
  - And, senior FTA policy and technology executives will continue to make presentations and hold Y2K sessions at all major APTA conferences including bus equipment and maintenance, bus operations and commuter rail meetings.

- The Community Transit Association of America, which generally represents smaller transit organizations, participated in the ITS Y2K Summit, and has partnered with us to heighten awareness on the issue. Officials from state departments of transportation , were well represented as well at the summit, and also partnered with us, also on behalf of small transit providers. Their charge was to raise awareness and move their constituents (many which are the small urban and rural transit systems) to action around the country. In identifying critical systems that small transit operators depend on, last year, ATE Ryder began surveying its clients (over 100 transit agencies- 50 percent small urban or rural) to create a database on logistics vendors that transit providers rely on. Ryder is looking at vendors and their services to identify potential operational risk, and then notifying its transit clients of the vendor's level of compliance with Y2K.

As a follow-up to DOT's ITS Y2K Summit, FTA will conduct further outreach on advanced technology. At the Summit, nationally recognized transit professionals from all parts of the industry developed a plan that moved from awareness to action.

Other direct FTA plans that will augment its Y2K outreach efforts to its customers include:

- Issuance of further Dear Colleague letters emphasizing executive and managerial involvement with planning, identifying, and correcting Y2K issues.

- Continue partnerships with other government agencies and transportation organizations to identify possible omissions that may present problems in the future and provide additional outreach assistance and activities.

- Encourage transit community executives and managers to follow FTA's lead and take an active roll in identifying and correcting Y2K issues, as well as sharing Y2K successes and failures with their transit community colleagues. Implement a comprehensive Internet site with Y2K information and resources--detailing FTA's Y2K efforts and findings, and those of other government agencies and transit organizations.

Reaching out to the transit community on Y2K awareness and repair is a key part of the day-to-day management of all FTA programs. The issue is addressed during activities such as oversight reviews, seminars and other forums.

- Y2K questions and related issues are highlighted during each on-site Triennial and State Management Review and during SMR seminars. Grant recipients are asked specifically what they have done and will do to address Y2K concerns. Responses are noted in all reports and appropriate follow-up action is taken where necessary.
- Y2K issues have been included in Financial Management Oversight (FMO) reviews. For example, during review of a grant recipient's financial system, if it is found that the Y2K issue is not being addressed, a finding is rendered indicating a weakness in the grantee's financial system. Y2K discussions are also held with attendees at FMO Seminars and between FTA staff and grant recipients.
- Y2K issues are included in the procurement system review process. During the entrance conference, the head of the transit property is asked if the equipment being purchased with FTA funds is Y2K compliant. During the on-site reviews, purchase records are examined to see that equipment purchased complies with the Y2K requirements.
- Y2K issues are a key part of quarterly Project Management Oversight meetings for all capital projects.
- As a routine part of our daily contact with grantees' safety and security personnel, inquires are made of their Y2K activities. Y2K questions are also posed during the audit and review process.
- Y2K compliance questions are asked at each of the six National Transit Database workshops held annually.

Before I close my statement Mr. Chairman, I would like to highlight the important role this Committee and the Administration have played in ensuring that the transit industry will be fully ready for the 21st Century.

The Transportation Equity Act for the 21st Century - and the FY 99 Appropriations bill, which follows the guarantee levels established in that landmark legislation - provides 40 percent more funding for investments in the nation's transit systems than under ISTEA.

Funding for Y2K repairs is an eligible expense under the provisions of TEA-21 for each of our grant programs — new capital investments in both fixed guideways and buses, fixed guideway modernization formula programs, programs for rural, elderly and handicapped transit and in ITS.

We will continue to provide guidance and technical assistance to our grant recipients identifying programs in TEA-21's major transit programs that are eligible for Y2K investments. This provides the basic resources needed to make necessary repairs. The record levels of investment in transit provided by TEA-21 are a major factor ensuring that all parts of our Nation's transit community will not be caught by the Year 2000 trap and transit will keep rolling.

To this end, FTA's combined efforts will ensure that we provide the best service and assistance to the transit community and grant recipients so they can in turn offer the same to FTA's ultimate customers -- the traveling public.

Thank you for this opportunity to address the Committee and I will be happy to answer any questions the Committee might have.

Statement of

Jim Gardner
On behalf of
Association of American Railroads

Submitted to
The House Committee on Transportation & Infrastructure

October 2, 1998

The Association of American Railroads (AAR) appreciates this opportunity to present its comments on the impact of the Year 2000 (Y2K) problem on the railroad industry including Amtrak. I have also attached a written statement prepared by Amtrak on its efforts with regard to Y2K issues. AAR's members account for 93 percent of the railroad industry's freight revenues, operate 77 percent of the railroad industry's line-haul mileage, employ 91 percent of rail workers, and operate almost all of the nation's intercity passenger trains.

All segments of the rail industry are very much aware of the critical importance of addressing the potential problems that could affect computer systems with the century change. Railroads and rail suppliers are actively engaged at every level in identifying and preventing these problems. The major railroads expect to spend in excess of $250 million on the Y2K issue. In this testimony we will provide insight into the industry's experience to date in safety-critical areas and share the project management approach being taken.

From a railroad perspective, Year 2000 efforts are focusing primarily on two critical areas: safety and service continuity.

Focus on Safety

Our first priority is the safety of our employees, customers, and the public at large. Our industry has made significant strides in safety over the past two decades. The train accident rate has fallen by 23 percent since 1990 and by 68 percent since 1980. Employee lost workday injury and illness rates are down 52 percent since 1990 and 62 percent since 1980. Railroads will not let the Year 2000 challenge blemish that record of improvement.

The rail industry's Year 2000 efforts in safety-critical areas address mainframe computer systems, decision support systems, and a variety of components supplied by vendors, including embedded devices. Railroads have received many inquiries about signals and highway grade crossing devices and have good news to deliver in response to these inquiries. Research and testing experience so far shows that the safety-critical aspects of signals and grade crossing devices do not employ date calculations. Because of this they are not subject to the sort of Year 2000 problems that affect credit cards, telephone systems, and older mainframe computer programs. However, the industry does not plan to stop the research and testing until we are assured that every safety-critical component and system will operate properly before, during, and after the century change.

Service Continuity & Project Management

Service continuity is a major concern to the rail industry and our customers due to the tremendous amount of rail traffic which is handled by two or more railroads in inter-line movements (25% of traffic and 33% of rail freight revenue). The Federal Railroad Administration hosted a meeting on general Year 2000 issues on July 20 for freight railroads, rail suppliers, commuter railroads, and Amtrak. At that meeting, eight AAR member railroads were represented and four made presentations on their Year 2000 activities. One key point made was that operations at large railroads in particular depend on information technology. For this reason, railroads cannot take the chance that they will be able to continue to operate at current levels without addressing the potential for Year 2000 problems.

Having identified this critical issue, AAR member railroads instituted formal project management procedures. CEOs are updated regularly on progress. Responsibilities are clearly defined, resources are budgeted, and detailed plans outlined to address the various potential problems. Formal weekly status meetings are the norm.

Efforts to address Year 2000-related problems have been underway at railroads for several years. The first stage of addressing Year 2000 problems at most railroads was completion of an inventory of potentially affected systems and components. This work, by necessity, has been carried out inside the information system departments as well as in the field. This process also includes division of the inventory into critical and non-critical, often with several categories ranging from safety-critical down to "nice to have."

In the second stage railroads perform impact analysis, or preliminary testing, to determine which systems or components actually experience problems when presented with the century change or other "special" dates.

Once the potential problem areas are identified, remediation, the third stage begins. One railroad estimates that 3 to 4 percent of their core mainframe lines of code need remediation. AAR believes this is typical. Following remediation, the upgraded system or component needs to be tested to assure that it will perform as required before, during, and after the century change.

The last stage is contingency planning. Railroads have identified the need to develop detailed contingency plans that can be activated if required.

Within their Year 2000 Project Offices, most railroads distinguish between their Information Technology (IT) related work and their Enterprise, or business, work. Specialists are deployed in each area so that appropriate skills and knowledge gained from past experience can be applied. The IT work, particularly addressing core mainframe systems, began before the Enterprise area work. AAR understands that its members expect to complete the great majority of their IT work this year. The Enterprise work is also well underway, but is expected to stretch into 1999.

While most Year 2000 work is performed at the individual railroads, there are supportive activities at the industry level. The AAR Board of Directors has stimulated activity and receives regular status reports, as do other groups with representation from railroad Chief Operating Officers, Chief Marketing Officers, and Chief Information Officers.

The North American Rail Industry Year 2000 Coordination Task Force was formed to manage the industry level activities and includes members from large and small railroads, with staff support from AAR. The Task Force engages in cooperative efforts to support North American railroads working to prevent the century change from negatively affecting rail industry safety and service.

Due to the nature of North American rail industry operations, often more than one railroad must work together to handle many customer shipments. This is supported by extensive interaction among railroad information systems and has led to the development of various central information system applications at Railinc, AAR's information technology department. The Task Force has developed a plan for testing these systems to ensure that the separate railroad information systems interact appropriately when presented with situations where Year 2000 and related date issues might arise. The Task Force expects that the most significant portion of the testing work will be completed in 1998.

Further, the Task Force has agreed to leverage the knowledge gained at individual railroads by sharing information from Year 2000 research, testing, and remediation of systems and components. This information will be available to participating large and small North

American railroads in a structured data base through a secure electronic access mechanism. Also, the Task Force is planning joint research and testing in selected areas.

Relief from Liability

Legislation in the House offers some protection from liability to parties making statements related to efforts to address Y2K issues. The legislation recognizes, given the myriad communications that of necessity will take place as businesses and consumers address Y2K issues, the potential for litigation by parties claiming to have been misled or otherwise harmed by such statements. By establishing a uniform standard that limits liability to egregious conduct, the free flow of useful information will be encouraged; at the same time, forum shopping will be discouraged. The rail industry supports this common sense approach taken by the House bills.

Unlike the House legislation, the Senate bill, S.2392, also provides a temporary exemption from the antitrust laws for certain collective conduct aimed at avoiding Y2K problems. Given the network nature of the rail industry, as this testimony explains, some degree of coordination among railroads is needed effectively to address Y2K issues. The rail industry firmly believes that any collective action it has taken or will take is reasonable and procompetitive, and certainly would not constitute a violation of the antitrust laws. Nonetheless, by removing the threat of spurious litigation the proposed legislation likely would be of some value in encouraging companies to work together to address issues in their industries and in facilitating solutions to Y2K problems in all areas of commerce. Moreover, since the antitrust exemption would not apply to traditional *per se* offenses, such as price fixing and allocation of markets, there is little likelihood that the exemption could be used to shield anticompetitive conduct.

Conclusion

AAR hopes it has conveyed the seriousness with which the rail industry is approaching the threat of Year 2000 problems. AAR believes that the rail industry's approach will enable it to continue safe, customer-responsive, efficient rail operations before, during, and after the century change.

TESTIMONY OF STEPHEN ROBERTS

CHIEF INFORMATION OFFICER

INFORMATION TECHNOLOGY SERVICE CENTER

OF THE

NATIONAL PASSENGER RAILROAD CORPORATION

BEFORE THE

HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

OCTOBER 2, 1998

Mr. Chairman and Members of the House Transportation and Infrastructure Subcommittee on Railroads, I appreciate the opportunity to be able to submit this testimony for the Hearing Record, discussing how Amtrak has prepared for the year 2000 calendar change over. My name is Stephen Roberts and I am the Chief Information Officer for the Information Technology Service Center (ITSC) at Amtrak. The ITSC is responsible for identifying and implementing technology changes required to Amtrak's systems in preparation for the year 2000.

Amtrak's Year 2000 project is progressing according to plan with all of its mainframe systems on schedule for changes for the year 2000. The project remains within budget and is on target following the year 2000 methodology most widely used in the industry.

Amtrak began preparing for the year 2000 calendar change over in October of 1996 when it began securing funding for an assessment of its business systems and for a legacy system inventory. In January of 1997, Amtrak's Year 2000 project was fully staffed and activated. Amtrak has since completed the assessment of its business applications and an inventory of all of its legacy mainframe systems.

In all, Amtrak has worked with three companies, specializing in remedying legacy business application systems for the year 2000. The companies have augmented Amtrak IT staff assuring the availability of skilled programmers to make code changes and to complete the testing of the year 2000-ready code. Because a high priority was placed on assuring the readiness of Amtrak's reservation system (ARROW), Amtrak contracted with specialists in reservation systems to assess ARROW's readiness for the year 2000. This assessment was completed in June of 1997 and found that only **nine** out of ARROW's 5000 programs required changes to become ready for the year 2000 calendar. These changes have since been made and Amtrak has begun testing ARROW and its communication links to the airlines and travel agencies.

Amtrak also places a high priority on assuring the readiness of its operations and safety for the year 2000 change over. As a result, Amtrak's Assistant Chief Engineer initiated the Communications & Signals Year 2000 Compliance Program. The purpose of the program is to evaluate every device and software process used in the day-to-day operations of the signal or communications system that are either microprocessor or computer based. Key vendors are requested to provide certification of equipment that contain embedded computer chips. The electric power companies that supply electric power to Amtrak in the Northeast Corridor have already been contacted requesting a certification of their systems' readiness for the year 2000. Responses are being received from the utilities attesting to active year 2000 projects and their planned year 2000 readiness. To date, no year 2000 equipment issues from the embedded computer chips have been identified.

Amtrak has also hired a contractor to perform an assessment of the software for the Centralized Traffic Control systems (CETC). A report has since been issued identifying all of the programs that require year 2000 related changes, including year 2000 changes to the operating systems and third party software used by CETC. All modification and testing of these programs are scheduled for completion by the first quarter of 1999. Amtrak has also contacted its supplier of communication software linking locomotives to the operations centers to verify the software's year 2000 readiness. Amtrak is presently testing the train communication software as a part of the year 2000 project.

Amtrak has also contracted with IBM and IMR (Information Management Resources, Inc) to convert 54 application systems. Amtrak selected these companies through a competitive bidding process because of their experience and expertise in readying legacy systems for the year 2000 calendar change over. Both companies have made excellent progress converting affected programs that are now being tested to validate the accuracy of the year 2000 program changes.

IBM has also initiated a project that identifies the computer equipment and software used at Amtrak. As a result, many of the computer hardware and software items listed in the document have now been certified year 2000 ready by the vendors. IBM and Amtrak are also verifying this information through independent testing of the hardware and software components.

Finally, Amtrak is proud to report that it is on schedule to convert all of its other business information systems by the year 2000. Amtrak has already converted its Travel Agency Processing system, and the programs are now ready for implementation into production. The success of this conversion was particularly important since this system served as a pilot project for validating our year 2000 conversion methodology. Amtrak is also in the process of upgrading its material management system to a year 2000 ready version. Amtrak staff have prepared a questionnaire for Amtrak's major material suppliers to ascertain their systems' readiness for the year 2000. Finally, Amtrak's Finance and Human Resources departments have begun soliciting bids for a replacement Payroll/Personnel system.

In summary, Amtrak has a well-established year 2000 project for readying its application systems for the year 2000 calendar change over. Amtrak employees are collaborating with expert consultants on the year 2000 software conversion to ensure that Amtrak's application systems are ready for the transition to the year 2000. Additionally, Amtrak was pleased to attend the Federal Railroad Administration's (FRA) Year 2000 Railroad Industry Workshop on July 20, 1998, and Amtrak has been apprising the FRA of its progress. Finally, Amtrak's Inspector General, Assistant Chief Engineer, and ITSC are coordinating their year 2000 efforts through the sharing of information on their year 2000 conversion activities. Attached is a table detailing the conversion progress of Amtrak's application systems (Attachment A) and a chronology outlining the steps Amtrak has taken to ready itself for the year 2000 calendar change over (Attachment B).

Again, thank you for the opportunity to submit this testimony.

Attachment A

Application Systems Conversion Progress Summary

Description	Start Date	End Date	Comments
Inventory and Assessment	March 1997	September 1997	5 mil. Lines of code, year 2000 date impact is 70%
Mainframe computer Hardware/Systems Software upgrade	June 1997	October 1998	Systems and application testing in progress
Pilot Project	October 1997	May 1998	Conversion and acceptance testing completed
Reservation System (ARROW)	October 1997	January 1999	Testing of infrastructure and applications in progress
Revenue Management Application Systems	March 1998	December 1998	Project on schedule and within budget, year 2000 testing started
Financial /Accounting Systems	March 1998	January 1999	Conversion program code is proceeding on schedule
Labor Systems	April 1998	March 1999	Code analysis in progress
Operations & Safety	March 1998	May 1999	Contacting vendors, embedded systems testing in progress
Business Partners	February 1997	May 1999	Validation/Testing of systems, replacement of Amtrak's Materials System
Amtrak Information Network	September 1997	February 1998	The analysis and testing of network components is in progress

Attachment B

Chronology

- October 1996 – Amtrak Management allocates funds for a year 2000 assessment and legacy system inventory.

- January 1997 - a full time director level position is appointed and begins staffing the project team for the year 2000 remediation project.

- March 1997 - contracted with Bedford Associates, an expert reservation systems service provider, to complete the assessment for ARROW, Amtrak's Reservation System. The assessment and inventory was completed June 1997 and revealed that out of 5,000 programs only nine programs required modifications.

- May 1997 - through the competitive bidding process Information Management Resources, Inc. (IMR) is selected to complete the year 2000 application assessment for the Amtrak business systems. The project is completed ahead of schedule by September 1997.

- June 1997 - existing mainframe computers are scheduled for an upgrade to year 2000 ready computer hardware and operating systems software, including related sub-systems, i.e. DB2, CICS. Installation of computer hardware and systems software has been completed. Testing of the operating systems software with the application systems is in progress for a targeted completion of October 1998.

- September 1997 - planning for the computer resources required for changing and testing of the 5 million lines of application code begin. The computer hardware and software is ready for application remediation and testing by February 1998.

- October 1997 - Amtrak management approves two-year budget for the year 2000 modifications (remediation) of the mainframe legacy application systems. The project is proceeding on plan and remains within budget.

- October 1997 - qualification of vendors through the competitive bidding process for the year 2000 modifications of the application code affected by the year 2000-date change begins.

- October 1997 - IMR is selected to make the Travel Agency Processing System ready for the year 2000-date change. This application was selected as a pilot project to solidify the year 2000 renovation processes. Renovation of 400,000 lines of code is complete in May 1998. The Travel Agency Processing System is ready for the year 2000-date change.

- January 1998 - Inspector General is briefed on the Year 2000 project.

- February 1998 - began soliciting information from various Amtrak departments on their state of readiness for the year 2000 calendar. Action items for the affected systems have been identified and progress is monitored.

- March 1998 - IMR and IBM are selected to convert the application systems for the year 2000-date change. Both vendors start the remediation, which is progressing according to the project plans.

- July 1998 -Year 2000 Project Office centralizes coordination of all Year 2000 project activities at Amtrak. Information Technology (ITSC), Inspector General and Assistant Chief Engineer meet to coordinate year 2000 activities to assure that safety and operational concerns are remedied as required for the year 2000 calendar change, including embedded systems and links to business partners.

- July 1998 - attended year 2000 meeting chaired by the FRA Deputy Administrator. Panel discussion by representatives of class 1 railroads on year 2000 Awareness, Assessment, Renovation Validation and Implementation.

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TESTIMONY
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ON BEHALF OF

THE METROPOLITAN TRANSIT AUTHORITY of HARRIS COUNTY, TEXAS

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

OF THE

UNITED STATES HOUSE OF REPRESENTATIVES

METROPOLITAN TRANSIT AUTHORITY OF HARRIS COUNTY
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October 2, 1998

Good Morning, Mr. Chairman, members of the Committee. My name is Bob Hayward and I am the Director of Management Information Systems for the Metropolitan Transit Authority of Harris County, Texas, better known as Houston METRO. Additionally, I serve as Chair of the Information Technology Committee for the American Public Transit Association (APTA).

I want to thank the Committee for affording me this opportunity to share some of Houston METRO's experiences in preparing for the Year 2000 problem. We are cognizant of the impact we can have on the greater, multi- county, Houston area and we share this Committee's Y2K concern about its impact on mass transit service.

Houston METRO's computer systems provide support for the United States 10th largest metropolitan transit system, which covers a 1,281 square mile service area, has an employment of 3600, deploys a fleet of 1,360 transit vehicles and serves 79 million riders annually.

Additionally, in partnership with local, county and state organizations, we are also actively involved in the operation of Houston TranStar, the regions state-of-the-art traffic and emergency management center. Chairman Shuster, Ranking Minority Member Oberstar and Texas members of this committee have toured METRO facilities and visited TranStar within the last year and are familiar with the size and sophistication of our operations.

HISTORY

I am happy to report that Houston METRO has, with two exceptions, completed its Y2K compliance for all of its mission critical systems, networking and communication infrastructure at a cost of approximately $375,000. 10% of Houston TranStar's systems are Y2K compliant and they have spent approximately $12,000 to-date.

Unlike many organizations that today are focused on renovating their systems, Houston METRO chose to replace its systems. A corporate long-range plan was instituted in the early 1990s and we began addressing Y2K compliance in early 1997. Our success's are attributable to due diligence in forming a committee empowered to deal with Y2K compliance, by creating auditable plans, assessing the status of our computer based systems, testing these systems, and creating contingency plans in the event of failure. As we have been approaching the millennium most of our vendors have been correcting, and delivering, Year 2000 compatible systems and this has afforded METRO the benefit of easily gaining Y2K compliance.

PROBLEMS

Our single most difficult problem over the past two years has been our vendor-client relationship. Due to poorly worded assurances of compliance and the unwillingness or vagueness in the sharing of information, our agency had to increase our testing and expand our contingency plans which resulted in increased delays in ascertaining compliance. As an example; one of our vendors stated that compliance could only be achieved by upgrading our system, at a significant cost to the taxpayers. Our testing failed to detect a problem and only after months of correspondence did the vendor finally agree that the Y2K error was located in a module not used by the Authority.

THE NEXT FIFTEEN MONTHS

Over the next 15 months our emphasis will shift from being "aware" to preparing for "survival" to ensure that transit services will not be interrupted. Our corporate Y2K committee will be focusing on key issues like continuing to investigate our vendor's Y2K status to ensure that all supply chains will be maintained, assess contingency plans for dealing with unanticipated problems, prepare for future unknowns like litigation issues, continue to provide internal testing of embedded chip technologies, and utilize independent consultants who specialize in compliance testing. We will complete our conversions for our embedded chip systems and non-mission critical systems by September 1999 with costs ranging from $100,000 to $500,000. Houston Transtar will be compliant by the end of March 1999 incurring a total system cost of $200,000.

CONCLUSION

I will conclude my testimony by answering your question on how this Committee can best help with this problem. First I suggest that legislation be enacted providing liability protection for those who share information in good faith, but this must in no way relieve vendors from performing due diligence. Secondly, the enactment of legislation to provide emergency funding for Year 2000 conversion activities would help ensure success within our industry.

Thank you for the opportunity to testify. I would be happy to answer any questions or provide any additional information that may be useful to this committee.

Testimony of Donald M. Itzkoff
Deputy Administrator, Federal Railroad Administration
before the
Committee on Transportation and Infrastructure
United States House of Representatives

October 2, 1998

Chairman Shuster, members of the Committee, I am pleased to have the opportunity today to discuss the initiatives of the Federal Railroad Administration (FRA) and the railroad industry to meet the Year 2000 (Y2K) challenge. President Clinton and Vice President Gore have made solving the Y2K problem a top priority for this Administration and for the country. I will first describe how FRA has successfully achieved Y2K compliance for all of its internal agency information systems, and then outline FRA's outreach activities with the railroad industry and the status of the industry's own efforts to address the Y2K problem.

FRA Y2K Compliance

On August 28, FRA certified to the Office of Management and Budget through the Department of Transportation (DOT) Y2K Project Coordinator that all of FRA's information systems—both mission-critical and non-mission critical—had achieved Y2K compliance. In achieving this milestone, FRA became the third agency in the DOT (after the St. Lawrence Seaway Development Corporation and the Surface Transportation Board) to meet the Administration's Y2K compliance mandate. The Department's Office of Inspector General recently reviewed FRA's assessment and concurred that FRA's mission-critical systems are Y2K compliant and provided us some recommendations which we have accepted.

FRA's information systems primarily include data bases and local and wide area networks which support the agency's safety regulatory mission and internal operations. In contrast to other DOT modal administrations such as the Federal Aviation Administration or the Coast Guard, the FRA does not directly operate any computer or communications systems used in real-time transportation management. Nevertheless, FRA's experience in bringing its internal information systems into Y2K compliance has provided important insights enhancing its external Y2K outreach activities with the railroad industry.

Consistent with the President's intent that all government agencies act expeditiously to ensure Y2K compliance, in September 1996 the FRA established a Y2K project team. The team developed an action plan based on a best practices approach which tracks any large-organization Y2K compliance effort. Specific action steps included:

- inventory all systems, hardware, software, lines of code, and electronic equipment;
- assess the impact of the Y2K problem on FRA's systems;
- review FRA program office assessments;
- complete assessment phase;

- develop renovation plan;
- obtain required software applications Y2K repair patches and/or replacement software applications;
- complete renovation phase;
- develop validation testing plan;
- perform validation testing of systems to ensure compliance;
- complete validation phase;
- implement renovated system;
- complete implementation phase; and
- develop business continuity and contingency plan.

Pursuant to this approach, in the assessment phase FRA's Y2K compliance team worked with agency line managers, examined all of the agency's information and communications systems and identified 19 different systems requiring Y2K compliance. FRA classified these systems either as "mission critical"— those that are essential to the agency's mission; "mission central"— those that are important to agency operations; or "non-mission critical"—systems which improve work processes for employees. FRA designated seven systems as mission-critical, three systems as central, and nine systems as non-mission-critical.

By August 30, 1997, FRA had completed the assessment phase and had undertaken active renovation of those systems found not to be Y2K compliant. During this phase, FRA learned that initial assessment of some systems did not always accurately reflect the magnitude of the work required for renovation. Comprehensive oversight to validate all assessments with line managers proved necessary to ensure an accurate and complete inventory of all systems, subsystems and software applications.

During the renovation phase, FRA concentrated on mission critical systems that required repair or replacement. Where appropriate FRA replaced software applications with commercial off-the-shelf products, upgraded or replaced equipment incorporating affected embedded chips, and contracted out for services to repair the remaining systems. In addition to assuring compliance of existing information systems, FRA also addressed ongoing acquisitions of new software and hardware to assure certification by the manufacturer of Y2K compliance.

By June 1998, FRA had completed renovation and repairs to the agency's three remaining non-complying mission critical systems: the LAN/WAN; the Railroad Safety Information System; and the Enforcement Case System. In July 1998, FRA undertook acceptance and validation testing of the renovated systems utilizing strict technical compliance criteria. During this time-frame, FRA completed renovation of its one system deemed mission-central (Correspondence Control Management System) and similarly conducted acceptance and validation testing.

Based on this testing regimen, in July 1998 FRA certified full compliance of all of its information, computer and communications systems, including non-mission critical systems, with Y2K compliance requirements. In early September 1998, the Office of Inspector General reviewed FRA's documentation on the following systems: the LAN/WAN, Railroad Safety Information System, Enforcement Case System, and Asset Inventory Management System. OIG also reviewed FRA's Business Continuity and Contingency Plan. The OIG has concurred in FRA's determination that the agency's mission critical systems are Y2K compliant. OIG has recommended that FRA obtain written assurance that the National Institute of Health mainframe computer, which serves a portion of the Railroad Safety Inspection System, is Y2K compliant and that user management input be expanded in the development of the final FRA business continuity and contingency plan. FRA has accepted both recommendations.

While FRA's internal agency systems have achieved Y2K compliance, FRA continues to work closely with DOT to ensure compliance of all common Departmental systems. FRA assistance includes reviewing renovation repairs, sending test files to test interfaces and file structure, and receiving files to test the interfaces and incoming file structures. In addition, members of the FRA team participate in a working group dealing with the Department's Y2K efforts.

FRA staff have met with the owner of the Vermont Avenue building in which the agency is a tenant, and have received certification that all systems in the building are Y2K compliant. DOT has certified FRA's telephone system as Y2K compliant. FRA will continue to work with the General Services Administration to assure tenant Y2K compliance for the agency's field office structure, and to ensure similar compliance with appropriate connecting utility services.

FRA holds title on behalf of the DOT of the Transportation Technology Center (TTC) at Pueblo, Colorado, which is operated under a care, custody, and control contract by Transportation Technology Center, Inc. (TTCI), a wholly-owned subsidiary of the Association of American Railroads. TTCI has conducted a survey of all systems in use at the TTC that could be affected by Y2K issues. TTCI found that all the higher-end hardware is in compliance and all the major software systems in use are Y2K compliant or, when new patches of fixes for Y2K are released, they will be applied as needed. Those items that were found to be not compliant have been excessed and are no longer in inventory.

FRA Outreach with the Railroad Industry on Y2K

In 1997, FRA began to address Y2K issues with railroad staff members in the course of carrying out its Safety Assessment and Compliance Program (SACP) activities with the major freight railroads.

These initial survey activities underscored the need for a more structured dialogue. On July 20, 1998, FRA convened a workshop with the railroad industry in Washington, D.C., to discuss issues with computer readiness for the Y2K problem. In attendance were representatives from the Association of American Railroads and Class I railroads, Amtrak, the American Short Line and Regional Railroad Association and several of its members, the American Public Transit Association and commuter railroads, the Railway Progress Institute and railroad suppliers, and labor officials. Other government organizations present included the Office of the Inspector

General of DOT, the Volpe National Transportation Systems Center, the Surface Transportation Board, and the General Accounting Office.

The workshop emphasized the importance of preparing for Y2K, stressed the need to share information throughout the industry to deal with the Y2K fixes efficiently and cost-effectively, and highlighted the major potential disruption to the transportation infrastructure if railroads do not successfully address the issue. Liability issues regarding Y2K were discussed. FRA strongly supports the Administration's "Good Samaritan" bill (the "Year 2000 Information Disclosure Act") which would exempt organizations from certain liabilities for sharing information on fixing Y2K problems. We are pleased that the legislation (S. 2392) has passed the Senate and we hope that Congress will pass this bill before it adjourns this session. Proceedings of the workshop were prepared, and we are furnishing a set of those proceedings to the Committee.

Following the workshop, FRA requested major Class I railroads to provide information addressing the status of Y2K assessment, renovation, validation, and implementation activities with regard to both safety-critical and business systems. FRA asked for input describing the extent of employee involvement in identifying potential Y2K problems as well as informing them of the fixes that have been carried out. FRA also sought specific information highlighting coordination of Y2K activities with tenant commuter railroads as well as connecting short line and regional railroads.

In response, according to Burlington Northern Santa Fe Senior Vice President Jeffrey Moreland, "[A]t this point the tasks we're facing appear quite manageable. We're shooting for all code changes and testing to be completed by December 31, 1998, so we will have an entire year for addressing unexpected problems that arise with BNSF systems and for supporting industry-wide Y2K projects." CSX Transportation President and CEO Pete Carpenter responded, "Overall, the CSX Year 2000 initiative is currently proceeding on schedule with completion of all key areas expected by mid-1999. . . .CSX anticipates that it will have resolved the Year 2000 issue for all mission critical applications by the end of 1998 and for all non-mission critical applications by June 1999." Jerry Davis, then President and COO of Union Pacific, said, "Quarterly reports on Y2K issues and progress are provided to me and other top level Railroad executives. . . . Currently, we plan to have a Y2K command center staffed 24 hours a day in the fourth quarter of 1999—continuing into early 2000 —for any problems that might occur due to the Y2K. . . . Although we expect and have planned for January 1, 2000 to be just like any other day, contingency plans will be ready to implement just in case."

Other Class I railroads, including Amtrak, reported similar progress. I am pleased to provide the Committee for the record with a copy of the August 13, 1998, letter from Administrator Jolene M. Molitoris to the railroads and the responses FRA received.

Since the railroads have indicated that they expect most of the work on making their systems Y2K compliant will be completed in the first quarter of 1999, the FRA will convene another meeting in early 1999 so participants can report on progress and testing results. In the meantime, FRA will participate in sessions convened by the various railroad associations to address Y2K issues.

FRA Assessment of Raiload Industry Y2K Readiness

Based on FRA's outreach activities and the responses received from railroads and suppliers, FRA has developed the following assessment of the progress of the railroad industry in meeting Y2K objectives. The FRA does not have the capability to audit the information received from railroads and suppliers regarding Y2K readiness beyond a global systems assessment. FRA has, however, committed significant resources to industry monitoring, outreach, and information sharing. Recognizing the high visibility associated with the issue and the strong financial and other incentives each entity has for solving the problem, FRA has not had reason to question the veracity or reliability of the information obtained thus far.

The safety of railroad operations is of course the agency's highest priority. If FRA becomes aware through inspection activities or otherwise of a Y2K problem that has implications for railroad safety, FRA will take appropriate action under existing statutory authority to prevent unsafe operations from taking place.

Rolling Stock and Equipment

The United States railroad industry collectively owns approximately 20,000 diesel-electric locomotives. Sixty-five percent of these were built before 1985 and have no on-board electronics. Only those locomotives built since 1985 have on-board microprocessors. The two principal U.S. manufacturers of locomotives, General Motors and General Electric, are checking to ensure that there are no Y2K problems associated with embedded microprocessors. The only issues reported so far are associated with fault reporting systems and do not affect actual locomotive operations.

Starting in the early 1990's, some locomotives were equipped with electronically-controlled air brake controls and so-called Integrated Cab Electronics including flat-panel LCD display screens. The suppliers of the electronically-controlled locomotive brakes controls as well as new electronically-controlled pneumatic train brakes (now installed on about 10 trainsets nationwide) are still testing their equipment for Y2K compliance. The suppliers of Integrated Cab Electronics have already certified their equipment as Y2K compliant.

Since 1995, all freight cars and locomotives have been equipped with automatic equipment identification (AEI) tags, and AEI readers have been installed at many yards, terminals, and junction points. The readers add time and date information to the train consist lists generated as trains pass the readers. The readers were all installed since 1990 and are believed to be Y2K compliant. Suppliers are testing now to provide certification of compliance.

Grade Crossing Signals

Because grade crossing signals are event-driven, rather than time- or date-driven, signal suppliers, railroads, and FRA staff have concluded that grade crossing signals are free of Y2K problems. Electronic event recording systems keep track of grade crossing signal operation, but the signals are designed to operate even if the event recorders were malfunctioning due to a Y2K problem. New "intelligent" grade crossing signals, such as those being installed in Connecticut on the Northeast Corridor and in Michigan on the Detroit–Chicago corridor, are Y2K compliant from the start.

Train Control and Telecommunications

About one-half of the railroad tracks in the United States are controlled by signal systems in which train location is determined by track circuits [one-third by Centralized Traffic Control (CTC); one-sixth by Automatic Block Signals (ABS); less than one-twentieth by Automatic Train Control (ATC)]. The tracks controlled by these systems carry over 80 percent of the total traffic carried by railroads. The other half of the track is "dark territory" with no signal systems or track circuits in place. Control over "dark territory" and ABS territory is by movement authorities ("track warrants") issued by dispatchers over voice radio. Most of the signaling systems have been in place many years and some are purely electro-mechanical systems using relays. In new and upgraded systems, the relays have been replaced by microprocessors that emulate the relays. These systems are all event-driven, rather than time- or date-driven and consequently are not expected to have Y2K problems. However, signal suppliers are still evaluating their systems to confirm this conclusion.

Railroad dispatchers operate CTC and ATC signaling systems with computers installed at control centers. These computers control the switches and signals on the third of the railroad track equipped with these systems. The switches in the field generally are controlled by electro-mechanical devices. The suppliers of the dispatching computer systems are currently performing Y2K compliance testing with the railroads.

Railroads, to varying degrees, operate their own telecommunications networks. The western railroads operate full networks that include backbone systems consisting of microwave radios, fiber optic cables, pole lines, and buried copper cables; mobile voice and data radios; telephone switchboards; and wide area and local area data networks. The eastern railroads rely more on commercial telecommunications companies for their backbone systems and telephones, but still provide extensive telecommunications services. Because these telecommunications systems are all computer-driven, and because they carry voice radio communications between dispatchers, trains, and maintenance-of-way crews, telephone traffic, and data traffic for the operating data and business systems, telecommunications systems represent areas of potential Y2K concern. However, because of the rate of change of technology in this area, much of the equipment and software is new and Y2K compliant. Railroads and their suppliers are testing the equipment for compliance.

In general, because of the architecture of safety-critical railroad signaling, dispatching, and telecommunications systems and the operating rules that accompany them, FRA does not anticipate that Y2K problems would directly affect safety in the sense of heightening collision risk. However, the slowdown or gridlock that would result from Y2K problems with these systems, if not fully addressed, could indirectly affect safety during periods of degraded train operations and railroad network recovery. FRA will continue to monitor railroad progress in this area to assure that safety concerns are being addressed.

Operating Data and Business Systems

The railroad industry was one of the first major industries in the United States to adopt large-scale mainframe computers for operations management. None of the software for those systems, written in COBOL in the 1960s and 1970s, was originally Y2K compliant. Railroads have gradually added to their systems over the years. Those that did the fewer additions to their software over the years fell behind, and in the late 1980s and early 1990s they often developed whole new suites of software in new computer languages. These systems were made Y2K compliant. Ironically, those railroads that did the most modifications to their old software suites over the years still have them in use and consequently face the greatest Y2K compliance issues. The business systems of each of the major railroads generally have more than 40 to 50 million lines of code.

In addition to their mainframe systems, railroads have widely adopted personal computers (PCs). It was in the late 1980s that the number of data terminals on railroads first exceeded the number of voice telephone sets. Railroads face the identical Y2K issues on these PCs as any other user. In general, railroads have been upgrading their PC networks over the years by replacing older PCs with newer ones that are Y2K compliant.

FRA has evaluated worst-case scenarios for Y2K and believes that the greatest potential threat involves failures of railroad operating data and business systems that would impede ability to assemble and dispatch trains and to determine the location and status of cars, locomotives, and crews. FRA believes this type of failure to be unlikely to occur, but if not sufficiently addressed could cause slowdown or gridlock on railroad mainlines and in terminals. Again, FRA's external Y2K monitoring and outreach program is based specifically on tracking railroad initiatives to avoid this eventuality.

Commuter and Passenger Railroads

Major commuter railroads (i.e., ones that own their own facilities such as Long Island Railroad, Metro North, and New Jersey Transit) appear to be progressing positively on Y2K matters, but the commuter railroads that are tenants on freight railroads still need to make sure that their systems and those of their hosts are Y2K compliant. Amtrak has identified and validated its Y2K remediation program and has indicated that its dispatching and business systems are anticipated to be in compliance by the end of the first quarter of 1999.

The electrified passenger and commuter railroads—Amtrak, SEPTA, New Jersey Transit, Metro North, Long Island, METRA, and Northern Indiana—are working with their respective electric utilities to ensure that they are Y2K compliant and can provide an uninterrupted supply of electricity on January 1, 2000. These railroads own about 50 electric locomotives and 2,000 self-propelled electric multiple-unit cars. All the locomotives and about half of the multiple unit cars have on-board electronics. These railroads are working with their suppliers to confirm that these locomotives and cars are Y2K compliant. The expectation is that, as with diesel locomotives, any Y2K problems would be associated with fault-reporting systems and would not affect actual operations.

Conclusion

Administrator Jolene Molitoris and I are pleased by the progress the FRA has made to date both in ensuring FRA's own computer systems are meeting the Y2K challenge and in working with our colleagues in the railroad industry to provide whatever assistance we can to help assure that railroad operations move seamlessly into the year 2000. We recognize that significant issues remain ahead, and I can assure you that the FRA and the Department will continue to play a very active role in meeting the Y2K challenge.

Mr. Chairman and members of the Committee, we thank you for the opportunity to discuss this most important issue with you, and appreciate your leadership in helping focus public attention on the Y2K problem. We look forward to working with the Committee over the next 15 months on this issue, and I would be happy to answer any questions you may have.

PRESENTED BY
LEE GARDNER

Testimony By
Chairman Linda J. Morgan
on behalf of the
Surface Transportation Board
1925 K Street, N.W.
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(202-565-1500)
before the
House Committee on Transportation and Infrastructure
on the Year 2000 Problem

October 2, 1998

Testimony By
Chairman Linda J. Morgan
on behalf of the
Surface Transportation Board
before the
House Committee on Transportation and Infrastructure
on the Year 2000 Issue

October 2, 1998

Introduction

My name is Linda Morgan and I am Chairman of the Surface Transportation Board (Board). I am accompanied today by Mr. Lee Gardner, the Board's Director of Economics, Environmental Analysis, and Administration. We are here today at the request of the Committee to discuss the Year 2000 (Y2K) issue. Specifically, my testimony will review Board's progress in addressing Y2K as it relates to Board functions. I will also describe outreach efforts that have been undertaken by the Board, itself and in cooperation with the Federal Railroad Administration (FRA), to monitor rail industry compliance. Finally, I will summarize what the Board understands to be the current status of rail industry efforts to ensure that Year 2000 does not adversely affect the continuity of rail service to shippers or the safety of operations.

Year 2000 Issues at the Board

Overview

Since its creation in 1996, the Board has made dramatic strides in utilizing computer technology and electronic media to improve internal and external communications and to increase the productivity of our staff. Clearly, technological improvements have affected positively our ability to accomplish the Board's mission. While computers have enhanced the efficiency and effectiveness of the Board, our increased dependence on this technology makes us more vulnerable to circumstances that might compromise the availability or dependability of these systems. Therefore, I have made the Year 2000 problem a priority at the Board, and Secretary of Transportation Rodney Slater has assigned direct responsibility for updating systems assessed to have Year 2000 problems to the head of each operating entity organizationally housed within the Department of Transportation (DOT).

In addressing the Y2K problem, the Board has carefully followed the General Accounting Office's (GAO) structured approach to aid Federal agencies in planning, managing, and evaluating their Year 2000 programs. This 5-phase approach entails awareness, assessment, renovation, validation, and implementation. The Office of Management and Budget has established March 1999 as the target date for all agencies to implement solutions and certify compliance with Y2K.

Compliance Actions Regarding Specific Systems

We have identified two systems at the Board that are mission-critical and three other systems that require modification in order to function properly in 2000. Mission-critical systems are the Local Area Network - including individual workstations - and the Uniform Railroad Costing System (URCS). Our Local Area Network provides a critical communication link among staff at the Board and is a vital tool for accessing information outside the Board and providing information to Board constituents and the general public. All of the servers and workstations used for general Board business processes have passed Year 2000 compliance tests, or have been replaced with Year 2000-compliant equipment. The second mission-critical system at the Board is URCS - a set of data, programs and procedures used to develop estimates of railroad movement or shipment costs. URCS has widespread application at the Board and is used for: calculating the cost recovery percentage; making jurisdictional threshold determinations for rail maximum rate cases; and evaluating rail abandonment applications. In September of this year we certified that URCS and all its components were Year 2000-compliant.

Three other computer systems, which are mission-enhancing but not mission-critical, have been identified as susceptible to problems associated with the Year 2000. These are our Fees and Billing System (FAB); Computer Assisted Depreciation and Life Analysis System (CALDAS); and CASE, a computer data base used to track proceedings before the Board. Necessary modifications have been made to CASE to make it Y2K-compliant. We are in the validation phase for FAB. Vulnerable programs have been updated, and we have begun testing these modifications to ensure full Year 2000 compliance. These tests should be completed by the end of October of this year, and FAB should be certified as compliant not later than November of this year. Finally, the software that operates CADLAS has been identified as vulnerable to Y2K problems. This system assists the Board in reviewing depreciation studies submitted every three to six years by each Class I railroad. The system is also used to manage railroad property databases. We have begun to make the necessary modifications to CADLAS to ensure that it generates accurate and reliable calculations in a post-2000 environment. It is estimated that this effort will require three staff months to complete, including system testing and documentation. We project that CADLAS will be fully compliant by March 1999.

With respect to resources devoted to Year 2000 at the Board, we have a small number of staff, primarily in the information systems area, who are overseeing the Y2K program as one aspect of their day-to-day responsibilities. Many of the potential problems associated with our network and workstations were resolved as a result of planned upgrades in our hardware and software. All of the costs associated with the Year 2000 efforts have been funded within our existing budget.

Year 2000 and the Railroad Industry

In addition to our concern regarding the effects of Year 2000 on the Board's ability to function efficiently and effectively, we have also been monitoring the rail industry's progress in making the necessary upgrades to their systems. As mentioned previously, the primary concern is with the continuity of rail service to shippers and the safety of rail operations.

In late 1997, the Board contacted by survey all Class I railroads to assess the potential impact of the Year 2000 problem on their accounting, reporting, and general operating systems. Based on these contacts, we concluded that the railroad industry had made significant progress in developing and implementing plans to eliminate any Year 2000 malfunctions that could threaten service or safety. In response to this survey, all of the major railroads indicated that all of their systems would be able to deal with the changeover to 2000. We also inquired about the projected costs for required modifications. Cost estimates ranged from $6 million to $46 million per railroad.

The Board has also participated in outreach efforts sponsored by the FRA. In July, the FRA convened a workshop that brought together representatives from the Association of American Railroads and individual Class I railroads, the American Short Line and Regional Railroad Association, the American Public Transit Association and individual commuter railroads, the Railway Progress Institute, railroad suppliers, the Brotherhood of Locomotive Engineers, and DOT's Office of the Inspector General, GAO, and the Board. The purpose of these meetings was to increase awareness of the Year 2000 issue in the railroad industry and to provide an opportunity to share information and jointly discuss solutions to problems created by the Year 2000. A second outreach meeting is planned for late 1998.

Summary

In summary, I am pleased to report that the Board has addressed all mission-critical systems issues related to Y2K and that we will be in full compliance with any remaining issues by March 1999. Further, based on our communications with the railroad industry, it appears that all segments of the industry have been aggressive in identifying Y2K issues and in making the necessary modifications to ensure that the service from and safety of this vital element of our transportation system is not compromised.

I would be happy to answer any questions you might have.

RAILROAD RETIREMENT BOARD

Statement by

Robert T. Rose
Chief Information Officer
on
Status of Year 2000 Initiative

Mr. Chairman and Members of the Committee:

Good morning. My name is Robert Rose and I am the Chief Information Officer for the Railroad Retirement Board. I am pleased to have this opportunity to testify about the status of our Year 2000 project.

The RRB is an independent agency in the executive branch of the United States Government which administers the Railroad Retirement and the Railroad Unemployment Insurance Acts. Under the Railroad Retirement Act, the Board pays retirement, disability, and survivor benefits based on employment with the railroad industry. During fiscal year 1997, the RRB paid $8.2 billion in retirement and survivor benefits to nearly 800,000 beneficiaries.

The agency has designated the Year 2000 issue as its highest priority project. Our primary goal is to complete the implementation of 100 percent of our mission-critical systems by the end of this calendar year, 3 months earlier than the goal established by the Office of Management and Budget. To demonstrate the strength of our commitment to this project, this goal is included as one of our key objectives in the agency's Strategic Plan. We have also established a goal to complete the implementation of virtually all of our non-mission-critical systems by the end of fiscal year 1999.

At this time, we are making very good progress and are on, or ahead of, schedule for meeting these goals. The RRB has 124 mission-critical systems, of which 87, or 70 percent, are now Y2K-compliant. Those 87 completed include 60 mainframe systems and 27 PC-based systems. All remaining mission-critical systems are scheduled for conversion by the end of this calendar year. Our most recent achievement was the completion of the renovation of all mission-critical systems by September 30, as scheduled.

Beginning in January 1999, we are planning a series of comprehensive integration tests for all major information systems. These tests, performed after each individual system has been revised and reintroduced into the production environment, will be geared toward ensuring that all interfaces, connections, and links between the various systems remain in sync and are fully functional.

We have also developed an inventory of external data exchanges for both mission-critical and non-mission-critical systems. These exchanges are generally conducted with other Federal and State agencies, railroads, and financial institutions. We have contacted all of these organizations and, with few exceptions, have developed all required Y2K data formats. In the event that all data received from external sources is not fully compliant before the year 2000, we plan to implement "bridge" programs which will temporarily reformat the information as required. Most of these bridge programs have already been developed and tested.

In addition to the application systems area, we are also taking action to ensure Y2K compliance in three other areas. First, all proprietary system software packages used in our data center will be tested and certified to be compliant by the end of fiscal year 1999. Second, in the area of desktop computing, we are testing the agency's entire inventory of personal computers for Y2K compliance. The agency's goal is to equip each employee with a compliant PC prior to the end of fiscal year 1999, and funds have been identified in the President's 1999 budget specifically for this purpose. In the third area, which concerns office facilities such as telephones and elevators, we are taking follow-up actions on those few systems found to be non-compliant.

The RRB's most significant external interface, which supports the payment of both Social Security benefits and Railroad Retirement benefits, is with the Social Security Administration. We have a close working relationship with SSA, and have exchanged test files with them to ensure that these interfaces will work smoothly in the year 2000. We also exchange information with the Department of the Treasury, related to the issuance of benefit checks, direct deposit transactions, returned payments, and other financial matters. They serve as the conduit for most transactions between the RRB and the Federal Reserve Bank and other banks. Treasury officials have assured us that no revisions are required in the formats of our file exchanges with them. The RRB does not have an international direct deposit program, and therefore, is not concerned with Y2K banking issues outside of this country. The Department of the Treasury has requested that we transmit our monthly benefit file via electronic data communication instead of by tape media to accommodate their Y2K conversion. We are complying with that request, and expect a smooth transition in that area.

In summary, we are confident in our ability to achieve the agency's goals for the Year 2000, and that our transition to the next century will offer uninterrupted service and continuous, high-quality operations.

Thank you. That concludes my remarks. I would be happy to answer any questions you may have.

HIGHWAYS, PIPELINES AND PUBLIC BUILDINGS ISSUES RELATED TO THE YEAR 2000 COMPUTER PROBLEM

TUESDAY, OCTOBER 6, 1998

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
WASHINGTON, D.C.

The committee met, pursuant to notice, at 10:03 a.m., in Room 2167, Rayburn House Office Building, Hon. Jay Kim [acting chairman of the committee] presiding.

Mr. KIM. [presiding] Good morning. The committee will come to order.

I would like to welcome all the members this morning on this third in a series of hearings that the committee is holding on the year 2000 or Y2K computer problems that face the transportation systems and infrastructure of the Nation. There is quite a bit of speculation in the media and elsewhere that the potential glitches in computer systems caused by the millennium date are not receiving sufficient attention.

The purpose of these hearings is to negate this charge with regard to the transportation industry and the public infrastructure of this country. The Transportation and Infrastructure Committee considers this issue a top priority and it's dedicated to assessing the potential risks facing the Nation in the area of transportation and public infrastructure, as well as facilitating solutions.

Today's hearing will focus on the problems with the GSA's Federal building inventory, and the Capitol complex, and the Smithsonian Institution, and the Nation's surface infrastructure, including highways and pipelines. As to the Federal building inventory as well as the Smithsonian and Capitol complex, buildings nationwide contain many different facilities related systems, such as elevators, climate control, fire alarms, and security systems, which are controlled by the computer systems that may fail on January 1, year 2000. This failure would be due to microchips or software that will incorrectly treat the date as January 1, 1900. The General Services Administration, the caretaker of the Federal Government's office real estate portfolio as well as the architect of the Capitol, and the Smithsonian Institution, all have all initiated programs to address these potential computer problems. Today we'll hear from the heads of these Government entities on their programs and the progress they have made. In addition, we will hear from the representatives from the Building Owners and Managers Association International on the actions being taken in the private sector. We will then turn the attention to the problems facing the surface infrastructure of our Nation.

With that, I want to close my remarks by thanking Chairman Shuster for holding this series of year 2000 hearings. We'll now call on the members who wish to make a statement.

The Chair recognizes Mr. Traficant for an opening statement.

Mr. TRAFICANT. Thank you, Mr. Chairman. I am glad to see Mr. Barram here, the fine job that he has done at GSA, has probably managed as well as any agency in the Federal Government, for some of the things they have done. I understand that the Office of Management and Budget has given your agency a B+. Knowing them, that must be an A+, because they don't toot anybody's horn. So when OMB gives you a pat on the back, I think that's laudable.

I am interested in hearing from you, Mr. Barram, about the validation process and the implementation schedule. Though I continue to encourage you to try and hold onto your jurisdictional authority and not to let OMB through their nice words try and continue to usurp your authority.

Also the Office of the Architect plays a prominent role, not only to the visiting public here but for the Members of Congress. I welcome Mr. Hantman here. I look forward to hearing your testimony and the fine job that you have done.

Finally, Mr. Heyman, who is in charge of the national treasure. I don't think anybody ever complains about the Smithsonian. We want to hear what the museum is doing to protect those treasures and our artifacts.

Mr. Colvin, from the Building Owners and Managers Association, will provide a look from GSA's private sector counterpart in the real estate sector, and give a status report from that viewpoint. I think all of that is in good order.

I think the Y2K issue must be addressed. I want to compliment and commend Chairman Shuster, Ranking Member Oberstar, and Chairman Kim for continuing to purge the issue.

Mr. KIM. At this time, I see we have Mrs. Morella joining us this morning. She is the distinguished chairperson of the Subcommittee on Technology of the Science Committee, and the co-chair of the Speaker's Task Force on Y2K. At this time, I would like to ask unanimous consent that she be permitted to sit on this meeting. Without objection, so ordered.

The Chair recognizes Mrs. Morella.

Mrs. MORELLA. Thank you, Chairman Kim. I appreciate that. Thanks for that unanimous vote to sit on the panel. I will be here only briefly, but I just wanted to make sure I was here to join the Transportation and Infrastructure Committee in participating, if only briefly, in this important hearing to explore the impact of the year 2000 computer problem upon critical components of our Nation's public works systems such as Federal buildings, pipelines, highways and intelligent transportation systems. I do also want to commend Chairman Shuster, Ranking Member Oberstar. I want to commend you, Chairman Kim and Ranking Member Traficant, as well as other members of the committee for their cooperation and their leadership in examining this critical issue. I am pleased to be able to be here with you today.

In my role as Chair of the House Science Committee's Subcommittee on Technology, and as co-chair of the House Y2K Task Force, along with my other co-chair who is here, Congressman Steve Horn, I've worked with my colleagues over the past two and a half years to focus on a wide spectrum of year 2000 issues that will potentially affect every American, ranging from its impact on our Nation's financial and banking sectors, to the delivery of Federal services and public benefits.

In our hearings, it has become apparent that the ability of the Nation's infrastructure to perform its critical functions on January 1, 2000, and beyond, rest not only with the computer system, but is also reliant upon the effect of microchips embedded in virtually all facilities. Embedded chips, microprocessors that store our processed data, drive a number of products that keep our Federal system operating and our Nation's transportation system moving, from our Federal courthouses to the pipelines that safely carry oil and natural gas, to the smartcards in automated toll ways. With the threat of a year 2000 failure, we need to examine the Y2K effect of these embedded chips.

We have much to do in a very short time to ensure that the right Y2K solutions are put into place. While I remain optimistic, the Department of Transportation as well as all Federal agencies must work proactively with State and local governments, with private industry and Federal stakeholders, to develop contingency plans in the event they are needed to ensure that the transportation of people, goods and services are not significantly impaired by the millennium bug.

I agree with the chairman of the President's Council on the Year 2000 Conversion, John Koskinen, that the goal now should not be absolute perfection, but rather prioritizing to minimize Y2K disruptions. The real challenge for agencies and industries dealing with Y2K is to catch up and meet the OMB milestone for March 1999 so that enough time is left to conduct the costly and time consuming end-to-end testing of systems, and very, very important aspect of it.

I am pleased that you have assembled here, Mr. Chairman, a very distinguished panel to help us review these issues. I want to thank them for their recognition of this problem, their willingness to share the year 2000 views and strategies. The fact that this committee is devoting four days of hearings to Y2K underscores the importance of transportation and infrastructure to our Nation's economy and welfare. I look forward to having them review these issues with the committee today.

Mr. Chairman, if I might just comment that on your third panel, you have several people who represent Montgomery County, Maryland, which is very special to me and it is my congressional district. I am proud that they are here. It is the third panel, but I did want to acknowledge Mr. Gordon Aoyagi, who is the chair of the Emergency Management Group of the Montgomery County Government. He is accompanied by Mr. Donald V. Evans, who is the director of the Department of Information Systems and Telecommunications. He is going to be able to point out some of the advances that are made by Montgomery County. I want to thank him for being here, thank our county for moving ahead, and thank you, Mr.

Chairman, for the courtesy you have extended to me. So I yield back.

Mr. KIM. Thank you. I wish to welcome our distinguished public buildings panel this morning. Before I proceed, are there members who wish to make any opening statement?

The Chair recognizes the gentleman from California, Mr. Horn.

Mr. HORN. I do not wish to make an opening statement. I will commend everybody that deserves to be commended. Let's get down to the nitty gritty.

Mr. KIM. Thank you. Does anyone else wish to speak? Seeing none, the first panelist will be the Honorable David Barram. He is the GSA Administrator. He is accompanied by the GSA chief financial officer, Thomas Bloom, the chief information officer, Shereen Remez, and the public buildings service chief information officer, Paul Wohlleben. To speak on the Capitol complex, the architect of the Capitol, the Honorable Alan Hantman. And from the Smithsonian Institution, the secretary of the Smithsonian, the Honorable Michael Heyman. Also from the private sector we have the secretary treasurer of BOMA International, Mr. Coffee Colvin.

We appreciate your participation this morning and look forward to hearing your testimony. Starting with Mr. Barram.

TESTIMONY OF DAVID J. BARRAM, ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION, ACCOMPANIED BY THOMAS BLOOM, CHIEF FINANCIAL OFFICER, SHEREEN G. REMEZ, CHIEF INFORMATION OFFICER, AND PAUL WOHLLEBEN, CHIEF INFORMATION OFFICER, PUBLIC BUILDINGS SERVICES; I. MICHAEL HEYMAN, SECRETARY, SMITHSONIAN INSTITUTION; ALAN M. HANTMAN, ARCHITECT OF THE CAPITOL; AND R. COFFEE COLVIN, SECRETARY/TREASURER, BUILDING OWNERS AND MANAGERS ASSOCIATION INTERNATIONAL

Mr. BARRAM. Mr. Chairman, thank you, and distinguished members of the committee, thank you for the opportunity to discuss the challenges of the year 2000 and what the General Services Administration (GSA) is achieving. Thank you, Mr. Traficant, for your kind words. The reason we are able to do so much and so well is that I have a terrific bunch of people. Three of them are here today. The Chairman mentioned Tom Bloom, our Chief Financial Officer. Shereen Remez is beside me, the Chief Information Officer, and Paul Wohlleben from Public Buildings Services (PBS).

I am proud of the tremendous progress GSA has made on the Y2K conversion both within our agency systems and as a Government-wide leader. We have received high marks from the Subcommittee on Government Management, Information and Technology chaired by Congressman Horn, and the Office of Management and Budget on our quarterly progress reports. As you may know, GSA through PBS manages more than 300 million square feet of space in over 8,600 buildings. Our approach includes three strategies. One, for the buildings we own, a different approach for the buildings we lease, and a third for other Government buildings not under our control. Finally, our CFO has assured us that our financial systems will be Y2K ready to issue bills and collect revenues.

Our strategy simply put has been to replace most of our systems with Year 2000 compliant technology and to renovate the rest to meet Y2K testing. The upgrades to GSA's Public Buildings Service systems, for example, are already in the second generation of Year 2000 compliance. What I mean by that is this. We replaced our major 27 year old legacy system with a modern mainframe platform in January 1997, Y2K compliant. Then we replaced that system with the distributed system, STAR, that increases business functionality. STAR brings commercial off-the-shelf software and web-based transactions to our agency as well as ensuring Y2K readiness.

As a leader in property management, GSA has not only moved to assure the compliance of its own property, but has also begun sharing information with the private sector and other public building managers. We are also partnering under the auspices of the President's Council on Y2K Conversion, with the leader in International Building Management, BOMA. I want to personally commend BOMA for its proactive leadership and accomplishments on Y2K.

We believe that the key to solving this challenge is information and sharing that information across industry. To that end, we were very pleased to note House and Senate approval of the Year 2000 Information Disclosure Act last week.

GSA building managers have surveyed equipment in 75 percent of our approximately 2,000 Government-owned buildings. At risk are systems and equipment such as elevators, HVAC, security systems, management control systems, and fire alarm systems. We have asked Logistics Management Institute to survey vendors on the compliance of equipment in GSA-owned space. So far they have collected information on nearly 4,000 products in GSA buildings and 10,000 total products. We have posted that information on a public website for use by all building managers, both in the public and private sector.

What is a critical system? A system was considered critical if its failure could result in a risk to occupants or a loss of or damage to property, or a significant reduction in the ability to perform normal business operations, or the inability to maintain the systems historic files. As we go along in this process, we are going to see a lot of information and misinformation in the media. We need to remind our tenants not only of our progress and continued work on this issue, but also the fact that nearly all building systems have manual overrides that can be activated in the event of any problems. To this end, we are planning a tenant information program that will be rolled out later this year.

In the next several months, we will complete testing and validating of our systems and preparing contingency plans. The first phase of testing will focus on vendor-certified compliant equipment. The second will test renovated and repaired systems. A draft contingency plan is in place for all systems as well as for unexpected failures. This plan focuses on manual overrides and encapsulation, which involves using an alternative date as a temporary workaround. We are continuing to refine this plan.

Mr. Chairman and members of this committee, I thank you for this opportunity to speak and the continued cooperation between

Congress and the Executive Branch in meeting the Year 2000 challenge. GSA is fully prepared to meet the Y2K challenge in the buildings area as well as in all of its areas of responsibility.

Mr. KIM. Thank you for that fine testimony.

The next panelist will be Mrs. Sherry Remez. You don't have any statement this morning?

Ms. REMEZ. No statement.

Mr. KIM. Who is going to be next then? Oh, the Honorable Mr. Heyman.

Mr. HEYMAN. I appreciate the opportunity to appear before you. I have gathered the information concerning the readiness of the Smithsonian for the year 2000 problem. It is an especially interesting problem because of our context. We have so many parts dedicated to the increase and diffusion of knowledge. We have 16 museums and galleries that cover an enormous number of topics. We have a series of research institutes involved with biology, both terrestrial and marine, with emphasis on tropical. We have research institutes on astrophysics and astronomy, on estuarine environments, on endangered species. I mention all of these because each of them give us a somewhat different problem with regard to year 2000 than most everything else dealing with administration.

Then we have a series of very large outreach efforts. We have a traveling exhibition service. We have the Associates of the Smithsonian, who put on a rich continuing education program. We have about 45 hours on the Internet, which is our most effective outreach program or at least in getting to people. We have started an affiliations program with museums around the country. So communication is very important as is administration. We have sites not only in Washington, D.C., but in many other States and in a number of other countries. We have about 6 million square feet of facilities, dwarfed of course by GSA, but nevertheless a large sum.

Beginning in October 1997, we surveyed our possible year 2000 problems and how we would attain compliance. We classified the problems into the highest priority problems on mission-critical systems, then a next priority, and then thirdly, the systems that involve our revenue producing or trust fund activities. On the highest priority, most of these systems are now year 2000 compliant. That includes fire alarm and suppression systems, elevators. As you would imagine in the Smithsonian, we only have two elevators which are computer controlled. Financial and payroll, with a little bit to go on the treasurer's system. Animal safety and nutrition in the zoo, which is also part of the Smithsonian. The telephone systems, except for voice mail, which we're working on and believe we'll have done by March 1999. And computer communications between the units of the Smithsonian.

The high-priority ones that we are still working on are heating, air conditioning, and lighting. We plan to have that done by July of 1999. Mailing and postage, which is a vendor service system. We are working with the vendor. Contracting and purchasing. The software has been installed and we are now testing that system. The security system at the Smithsonian does not pose a particular year 2000 problem. It is a problem because we have an antiquated sensor and computer system which occasionally fails. We monitor it constantly and we know when there's been a failure in any specific location. We immediately send up manual backup. We are working with the Corps of Engineers on a new system. We have hopefully in the Interior budget as it comes out of conference, the first sum of money necessary for solving a $12 million problem. But I must say that our security record is really excellent. Our loss ratios are tiny. If insurance, for instance, premiums are any indication, we are very highly rated as a secure place because we pay very low insurance premiums for our materials.

The next priority are important systems not quite as important as the ones I have just indicated. Compliance has been achieved in grants management, in inventory, in e-mail, and our visitor information systems. Others are in process. For instance, web sites which we'll have done by December, library and archival by March. Facilities management, a new system is under test presently. Collection information systems are mostly done. We have a little bit to go and we'll be getting those done in the next month or two. So we're doing well with those.

As far as our trust fund activities are concerned, our donor systems are in good shape. Catalog sales systems are fine. The Associates program ticketing for the events is fine. The shops, the retail operations of the Smithsonian have all been brought into compliance. As far as the Smithsonian Institution magazine is concerned, we are in progress but we expect to have it completely compliant by December of this year.

I think this review underlines our complexity, but it also indicates our readiness. If there are questions that arise later, I will be happy to address them or ask the two people I brought with me, the Under Secretary Connie Newman, or Rick Rice, who is director of facilities, to help.

Mr. KIM. Thank you, Mr. Heyman.

Next, Mr. Hantman, the Architect of the Capitol.

Mr. HANTMAN. Good morning, Mr. Chairman. I am pleased to present to the committee a status report on the Architect of the Capitol's response to the many year 2000 challenges that the millennium change brings the agency. The approach of the year 2000 presents a major problem to the continued operations of many automated systems that we operate internally and rely upon to provide the Congress with routine and critical business processes. At the same time, there are external services that we are responsible for procuring to support congressional activities such as utilities. We have also been working to ensure the continuance of these services in the next millennium.

I will first address our internal processes. The AOC approached this task by looking at what other Federal agencies were doing to meet the year 2000 challenge. The Best Practices Subcommittee of the Federal Government's Interagency Year 2000 Committee had developed a high level model and structured approach for year 2000 programs that was recommended by the General Accounting Office. This model included five phases and was the basis for organizing and implementing our year 2000 strategies. The five phases are awareness, assessment, renovation, validation, and implementation.

The initial stages of the AOC year 2000 effort were directed toward creating a general awareness of the problem and developing an assessment. The agency's information resources management division was tasked with taking the lead in this effort. They developed a high level plan for performing the renovation, validation, and implementation phases of the approach model. In order to reduce the risk of system failures, information systems were targeted to be compliant well before October 1, 1999. There were numerous systems and related year 2000 activities that had to be identified and tracked. We compiled an inventory of all systems and equipment that had potential year 2000 related problems. The inventory was inclusive of all AOC automated systems and were organized by office, major system, and detailed component. Each major system and detailed component was analyzed for year 2000 compliance. A determination of the status of each item was made using vendor information, independent verification, and validation by the AOC or other test sources, including GSA.

For all items found not to be year 2000 compliant, solutions and implementation plans consistent with the year 2000 project completion date were developed. Creating a comprehensive system inventory was a central and necessary component of success in dealing with the year 2000 problem. A point of contact was identified and this person was designated as the primary person responsible for year 2000 compliance on that particular system. A data base was created to capture consolidated status information for each item in the system inventory.

The AOC also established a year 2000 committee to support increased awareness within AOC. Additionally, we participate in the Interagency Management Council's Chief Information Officer Council's Subcommittee on the Year 2000, and also the Y2K Building Systems Subcommittee. They address Government-wide issues concerning year 2000 and support the development of technical solutions, dissemination of information.

As a result of this effort, Mr. Chairman, we have come a long way toward meeting the year 2000 challenge. The year 2000 compliance status of major AOC systems is as follows: With respect to mainframe computer applications, most all applications operating on the UNISYS mainframe computer were not year 2000 compliant. The system was phased out effective October 1, 1998. Upgrade or replacement of these applications was required. The upgrade and re-hosting of AOC financial systems was the largest and most critical requirement. That was accomplished effective October 1 of 1997.

With respect to client/server computer applications, our offices developed new applications and re-hosted some older ones to serve the client/server architecture. They are all year 2000 compliant.

With respect to network equipment software, the year 2000 impact on network equipment software is basically minimal. On desktop computer software, it currently includes a mix of older noncompliant and newer compliant software. There are several applications being migrated to year 2000 compliant software. We expect to be completed by October 1 of 1999 on these issues.

With respect to desktop and server computer hardware, newer equipment in this technology is generally 2000 compliant. There is an existing population of older equipment that is not compliant, however, and they will require equipment upgrade and replacement. That is being accomplished as part of our ongoing life cycle equipment replacement program, and should be completed by June of next year.

With respect to agency interfaces, we have automated system interfaces in operation with the U.S. Department of Agriculture National Finance Center, the NFC, and the Department of the Treasury Financial Management Services, FMS. Based on correspondence between us and these agencies, we have established a time table to create four-digit data exchange solutions that will be in place well before the year 2000. We have also worked with Treasury to assure that our electronic interfaces with the FMS is now exchanging data with four-digit data fields.

With respect to our results in meeting the year 2000 challenge, I am pleased to report that we are meeting the challenge and succeeding. In the first quarter of Fiscal Year 1998, the General Accounting Office was tasked with assessing and tracking the progress of selected Legislative Branch agencies in their year 2000 compliance efforts. This included the Senate, the AOC, Library of Congress, Congressional Budget Office, Office of Compliance, GAO, GPO, Capitol Police, et cetera. So far, the GAO has presented two quarterly reports on the progress of these agencies. I am pleased to report that this agency has consistently been one of the top rated ones among the selected agencies monitored. We also continue to take a look at all of our issues across the board.

With respect to other year 2000 issues, embedded chip systems were discussed earlier. We have many systems supporting our internal operations. There are several other areas of responsibility in operations that have also been reviewed for year 2000 compliance. These areas include engineered systems such as our energy management and control systems, elevator control systems, electrical systems, fire protection, life safety systems, and the systems that monitor the operations of the Capitol power plant. In each case, year 2000 compliance for the electronic components within these systems has either been confirmed by the manufacturer or we have established a comprehensive program to bring them into compliance in a timely manner.

With respect to external year 2000 issues, we are working with PEPCO, our major utility that supplies electricity to the Capitol complex, as well as sources that supply fuels for the Capitol power plant and the District of Columbia Water and Sewer Authority. We are working to have each of these services providers confirm that they have exercised sufficient precaution to be able to continue delivering uninterruptable services to the Congress. We have been advised in writing by PEPCO that they are undertaking every necessary effort to meet the year 2000 challenge.

Mr. Chairman, in follow-up to this written testimony submitted for the hearing, I met yesterday with the president and CEO of PEPCO to get an update and an up-to-the-minute report on their progress in solving Y2K issues that might impact our electrical supply. He was accompanied by the group vice president for transmission and marketing, who was primarily responsible for resolution of Y2K issues. They reported that they will have made the required Y2K changes and tested their generating units by the end of the first quarter of 1999. They will then remediate any problems found in these tests.

Although they can not say that everything will be 100 percent perfect, they stated that the likelihood of anything happening is practically zero. This is due to the redundancy of their capability and their ability to take a lot of hits before we would be impacted in any significant way.

PEPCO, as you may know, Mr. Chairman, is part of the PJM power pool in Valley Forge, Pennsylvania. That represents eight companies in Pennsylvania, New Jersey, Maryland, Delaware, and the District of Columbia. This is one of the oldest and tightest power pools in the U.S., having some 540 generating units and some 56,000 megawatt capacity of electricity. PJM's grid system has many redundancies, giving us more reliable service than many areas in the United States.

There are many systems and many steps that PEPCO and PJM are taking to eliminate potential Y2K problems. They are reporting their efforts to the President's Council on the Year 2000, Mr. John Koskinen, and are well underway with respect to their compliance. Among two of the major issues they are doing to back up the system just in case something should go wrong is normally--sir, just finishing up. In January, they normally don't have many of their units operating. This January of the year 2000, they will have all their units operating as backup to what we will be doing. So just in case one unit fails, they will have other units ready to support us.

Although PEPCO states that no one can say that there won't be a problem, they also state that the last thing in the world that they want to do is to have anything happen in Washington, D.C. We will continue to monitor their services.

Mr. Chairman, I would be pleased to answer any questions you might have.

Mr. KIM. Thank you, Mr. Hantman.

The next speaker will be Mr. Colvin, representing BOMA International.

Mr. COLVIN. Good morning. BOMA represents over 16,000 property management professionals who collectively own or manage over 6 billion square feet of commercial office buildings and facilities in North America and abroad. Our members are responsible in both the public and private sector. Indeed, the General Services Administration is a member of BOMA. Many of our private sector members own or manage buildings in which Government agencies are tenants. In that vein, I want to publicly acknowledge the leadership role GSA, and in particular, Administrator Barram has taken on the year 2000 issue. BOMA has been privileged to work with the GSA in addressing the potential challenges raised by the century date change. We look forward to launching new efforts beginning with the promotion of a nationwide Y2K awareness week to take place October 19 through the 23rd.

Building owners and managers find themselves on both sides of the year 2000 coin. On the one hand, we are consumers who need to obtain the most accurate information concerning the Y2K compliance of embedded systems directly from the manufacturers and installers of those systems. At the same time, building owners are vendors of property services from whom tenants are demanding warranties of Y2K performance. For this reason, BOMA would like to thank the Congress for passing Good Samaritan legislation, the Year 2000 Information and Readiness Disclosure Act. We expect it will assist our members in responding to concerns being raised by our tenants. We also believe it will prompt our suppliers to provide more information about the anticipated Y2K performance of the embedded systems they manufacture and install.

Embedded systems are part and parcel of building operations. An embedded system is one where software is contained within the hardware. A microprocessor that runs a building's heating, ventilating and air conditioning, for example, or a computer chip that controls fire and life safety equipment. Other types of embedded systems are building access controls, surveillance cameras, badge readers, refrigerant leak detectors, underground storage tank monitors, telecommunication systems, power generators and distributors. As the premier trade association representing commercial real estate, BOMA has taken the lead in educating property professionals on the steps needed to ensure that critical building systems continue to function smoothly as the century date change approaches.

This education is being carried out in three major areas. The first is our year 2000 guidebook. In January of 1998, BOMA published Meeting the Year 2000 Challenge, which sets out an eight-step plan for successfully managing this issue in buildings. This guidebook has been enormously popular with over 18,000 copies distributed to date. A copy has been included with our testimony today for each member of the committee.

Second are our educational seminars. Concurrent with the guidebook, BOMA launched a series of education seminars throughout the country. Over 50 such seminars have taken place or will be held before the end of the this year.

Third is our home page and listserv. Our web site, WWW.BOMA.ORG is a foremost source for information on Y2K from the standpoint of building operations. BOMA has also established a listserv that facilitates discussion and experience, exchange between real estate professionals on this vital issue. BOMA has also carried out advocacy efforts to advance the real estate's industry concerns on Y2K. As I mentioned, we supported the concept of Good Samaritan legislation and communicated specific ideas for clarifying and strengthening the bill.

Furthermore, we have called upon the administration to move the Federal new year's holiday from December 31, 1999, a Friday, to January 3, 2000, a Monday. This millennium moratorium would give property professionals added time to remedy any unforeseen problems stemming from building systems that incorrectly interrupt the century date change. I understand that the President's Council has taken the idea under advisement, and BOMA wishes to commend the value of this to your committee also.

In conclusion, BOMA International has embarked upon a wide range of activities designed to prepare both public and commercial building owners and managers for the potential impact of Y2K embedded systems. While we do not anticipate any major problems, that possibility can best be prevented through an organized program of due diligence, which is exactly what BOMA has been advocating through our year 2000 guidebook and educational programs.

We thank you for this opportunity to testify and will be happy to answer any questions at your pleasure.

Mr. KIM. Thank you, Mr. Colvin.

I do have a couple of questions for each panelist.

Mr. Barram, you mentioned the cost will be around $5.5 billion. My goodness, why is the cost so high? Is there any chance you can come back and ask for more money later on, saying well the estimate was wrong, we're now asking for $7.5 billion? That seems to be a trend.

Mr. BARRAM. I misunderstood part of what you asked. We are not asking for any additional appropriations. We are going to do the repairs or the renovations, the replacements that we need in our regular appropriated budget.

Mr. KIM. Well you asked for Fiscal Year 1998, you requested $3.25 billion already.

Mr. BARRAM. The administration did.

Mr. KIM. That is correct. Aren't you a part of the administration?

Mr. BARRAM. Yes. We are. So is your question why did the administration ask for so much money?

Mr. KIM. Why are the costs so high, $5.5 billion? Is there a chance you can come back and ask for more money? Is that estimate pretty accurate?

Mr. BARRAM. With all due respect, I would like to leave that question to John Koskinen or Ed Desev, who are managing the administration's overall budget on this.

Mr. KIM. All right.

Mr. BARRAM. I know that this is an area of substantial discussion. I am not prepared to--

Mr. TRAFICANT. Will the chairman yield?

Mr. KIM. I am more than happy to yield.

Mr. TRAFICANT. What was GSA's piece of that $5.5 billion? Would you know?

Mr. BARRAM. We have spent an estimated $9.7 million. In 1999, we expect to spend $6.5 million. All of that is inside of our budget. So we have relatively small in terms of other agencies, in large part because we have been replacing systems as we go over the past few years. They have been Y2K compliant. It's not that we have spent only that much on information systems. We have spent quite a bit.

Mr. KIM. You mentioned that GSA received A-and B+ on progress you put on this Y2K program. What do you mean by A-and B+?

Mr. BARRAM. That means pretty good. Congressman Horn's subcommittee gave us those grades. Our grades were at the very top of the list. We would like to always get A's from him, we would rather not get a B+, but it's pretty good because some people didn't do anywhere near that well.

Mr. KIM. It is my understanding that we have roughly about 1,600 Federally owned buildings and 6,000 leased buildings. Now what happens if owner will not participate or refuses to participate. Then what happens?

Mr. BARRAM. Well all of our leased buildings, we have leases with the landlord. The landlords are required to keep the buildings in good operating order. If we determine that they are not Y2K compliant and that matters to the health and safety and operation of the clients inside, we have a lot of leverage with the building owners.

Mr. TRAFICANT. Will the chairman yield?

Mr. KIM. Yes. I'm more than happy to.

Mr. TRAFICANT. One quick question while we are on that subject regarding the vendors who are not compliant in assuming that that may be the case. Will GSA at that point exercise the Government's right to terminate a contract for non-compliance predicated on the Y2K problem or lease?

Mr. BARRAM. If we had to we would. We like to think we can get to that point because every landlord knows we have that authority. So we think that between now and then we can convince people to be Y2K compliant. But yes, we do have that authority.

Mr. KIM. Thank you, Mr. Barram.

Mr. Heyman, you mentioned the security issue. You mentioned the security issue a couple of times. What does that have to do with the Y2K program? Is that vandalism oriented security system or actually--

Mr. HEYMAN. Well, it's a security system to make sure that people are not entering portions of the Smithsonian where they are not supposed to enter. It is a security system especially necessary at night to assure that there haven't been any incursions into our buildings or other facilities. It is a security system which x-rays packages that come in. It's many different things.

But it is a security system which seeks to protect the health, the safety of people who work and who visit the Smithsonian and also the items, the treasures, that the Smithsonian holds, to make sure that they are not stolen or damaged.

Mr. KIM. Well you mentioned that you are enjoying this low insurance premium. If you do anything about the Y2K program, insurance premiums will go up?

Mr. HEYMAN. Well, our problem with our security system with the electronic portion of our security system is not mainly a Y2K problem. It's a problem that occasionally it doesn't function in some areas of some museums. But we have a monitoring system that tells us immediately if it is not functioning. If it isn't, then we send Smithsonian Institutional police officers to that location and then we have got technicians who know how to repair it.

What I would like to do and what the Smithsonian would like to do is to revamp that whole electronic portion of the security system. We are working presently with the Corps of Engineers in putting together a plan for how to do that. If the budget requests that we have made survive the conference, the Interior conference presently, we will have the first portion of the appropriation that's necessary to begin that conversion.

But I must say that I am not very worried about the problem in terms of the safety of our materials because we really can cover with individual police officers whenever we have to. But once we get a really well-functioning electronics system, we will not need as many police officers as we presently need to create those assurances.

Mr. KIM. Thank you.

Mr. Hantman, how much money have you spent so far to address this Y2K problem?

Mr. HANTMAN. Mr. Chairman, the dollars that we have invested at this point in time have been invested over the past several years as part of normal appropriations. Similar to what GSA has done, as we replaced equipment, it has been Y2K compliant. I can check and see if there are specific amounts that relate to that, but again, most of it has been in the normal path of business.

Mr. KIM. Thank you. Mr. Colvin, I want to move on fast because other members, I'm sure they are anxious to ask questions too. Is Senate bill 2392 that information, Y2K Information Readiness Disclosure Act which passed both Houses, both bodies, what is your position on this?

Mr. COLVIN. BOMA's position has been that we support that bill in its final form. We feel that by bringing to bear the information, that making it not a tort to furnish information in good faith and based on reliable information that we fully support that. We believe that it will enhance the ability to transfer information between manufacturers and users by holding them harmless in certain instances. We feel that is an essential and vital part to resolving the Y2K problem before the end of next year. It is essential that we have that ability to exchange information freely and openly without creating liability in an unlikely manner.

I would like to address the question raised concerning Government buildings. If a commercial building or a privately owned building is not Y2K compliant, could the response of GSA, be to terminate the lease? I am sure that they could. However, having been a host to GSA some years back, I can assure the committee that every responsible property owner would make every effort to ensure that one of his best tenants was certainly accommodated in this situation. GSA has always been a favorite tenant of everyone that I know in the property management business.

Mr. KIM. Thank you. At this time, the Chair recognizes Mr. Traficant, the gentleman from Ohio.

Mr. TRAFICANT. Mr. Chairman, before I proceed, I would like to recognize a woman who is now the assistant sectary of the Smithsonian, Connie Newman, a very good friend, close friend of Eleanor Holmes Norton, and the fine job that she has done on the D.C. Financial Control Board. The Congress appreciates your efforts. I would like to let you know that.

I have a couple questions here. One real quick yes or no, I guess so we can get on with BOMA. Are your associates aware that noncompliance could result in termination?

Mr. COLVIN. Yes, in a word. Mr. Traficant, we have learned that we read every contract, every word of every contract before we sign it and understand fully our liabilities. It is the desire of every responsible building owner or manager to accommodate his or her tenants in the best way that they possibly can because after all, we have only one thing to sell, and that's building space. If it is not occupied, we are losing money. We like to work on the barter system. We have something that they want, and they have something that we want.

Mr. TRAFICANT. Reclaiming my time, I understand all that. I just wanted to emphatically make a point that in this whole Y2K issue, I think everybody believes that because of the significance and the landmark administrative functions that must be interrupted that there may be some leeway, there may be some second looks, there may be some accommodations. I think what the Congress is trying to do and make everybody who has a contract aware that there is a necessary time deadline and that there will be and should be certain non-compliance provisions that are placed in. So I appreciate that. I know that your association has done a good job in monitoring your associates contracts. It's good to hear that the contract process established, Mr. Barram, is so meticulously scrutinized and adhered to.

With that, I have a couple questions for I guess every panelist. We don't have a whole lot of time to go over this. I would like some brief answers, if we could. This mission critical systems within the agency, just briefly, how many real mission-critical systems are there and how does the agency define, more importantly, those mission-critical systems? I guess we'll start with you, Mr. Barram.

Mr. BARRAM. Thank you. We have 58. We define them as those systems that the absence of which we could not function as an agency.

Mr. TRAFICANT. Mr. Heyman?

Mr. HEYMAN. We have I have just counted them up, 11. For the same reasons we have denominated them critical.

Mr. TRAFICANT. Mr. Hantman?

Mr. HANTMAN. We have many categories of mission-criticals since we basically function as an office building, as a museum and all. Anything that keeps people from doing their business is mission-critical to us. So all of them are very important, sir.

Mr. COLVIN. Generally speaking our tenants define their mission-critical items. We will respond to those once we have assured that the telecommunications systems, the heating, ventilating, air conditioning, security and lighting systems operate.

Mr. TRAFICANT. Another one. You know, this isn't the sexiest of questioning here, but I think it's time you have to get down to some of the practicalities. There are telephone systems, elevators with computer chips, copying machines, fire alarms, security systems, power sources, all of these systems necessary to run the Government. Just briefly, what is the status of compliance with these very important systems to provide the services that are needed to dispatch your duties?

Mr. Barram?

Mr. BARRAM. Our goal is to be compliant by January 1999 inside of GSA. We're working with industry because we have commercial long distance and local networks that deliver calls. For building operations, we're doing surveys, notifying lessors. We have a data base of over 10,000 pieces of equipment by manufacturer. We are renovating in those two instances, which is about three percent where we know Y2K will cause problems.

What we have been finding is that about 97 percent are compliant, and we're working on the other three percent.

Mr. HEYMAN. Of the 11 I mentioned, two we're still working on, nine are compliant. The two that we are still working on I think we plan to be done by this coming summer.

Mr. HANTMAN. In each case, year 2000 compliance for the electronic components that have embedded chips have either been confirmed by the manufacturer or we have established a program to bring them into compliance in the first half of next year.

Mr. COLVIN. We believe seventy five percent of the embedded systems in buildings are not date sensitive. Of the remaining 25 percent, approximately three to five percent in our experience are found to be non-compliant, which pretty much reflects Mr. Barram's experience.

Mr. TRAFICANT. With that, let me go right to Mr. Hantman on a question. You mentioned PEPCO, for example. Let me pose just for a brief answer the prospect that hypothetical situation that, for example, PEPCO is not Y2K compliant. What do you do? How do you function?

Mr. HANTMAN. PEPCO, again, has this grid system that they are working on with eight other companies. They have very redundant systems at this point in time. Once again, we raised those same questions yesterday with the president of PEPCO. There's a very minor chance, he says, that anything will be going wrong.

We have emergency generators that relate to elevator service, emergency lighting in all of our buildings. Basically we do not have power backup for us to be able to do business as usual if we do not have PEPCO service coming in. But in terms of life safety and emergency systems, we are covered by our own emergency generators.

Mr. TRAFICANT. Mr. Heyman, climate control very important in the museum industry. What about that aspect?

Mr. HEYMAN. We are relying on the assurances that we have gotten from PEPCO.

Mr. TRAFICANT. Assurances or insurances?

Mr. HEYMAN. Assurances.

Mr. TRAFICANT. How accurate is that information, and who verifies it?

Mr. HEYMAN. Well, Rick, do you want to say something about that?

Mr. RICE. We have had discussions, most of our conversations with PEPCO have been in the energy conservation and other areas. But they have assured us that they are working and that we will have uninterrupted power. We too have emergency generators for short-term, for life safety and other systems.

Mr. TRAFICANT. In concluding my testimony, there's two things. Mr. Chairman, I ask unanimous consent that any questions I have not asked on my list be submitted to this panel and they number one, respond in writing.

Mr. KIM. Without objection, so ordered.

Mr. TRAFICANT. And number two, most specifically the question is to all of them, if they would highlight how do you verify accuracy of information relative to compliance on all of your systems? I would like that submitted in writing and ask unanimous consent for that.

Mr. KIM. Without objection.

Mr. TRAFICANT. Thank you, Chairman.

Mr. KIM. At this time, the Chair recognizes the gentleman from Wisconsin or the gentleman from California, Mr. Horn.

Mr. HORN. Thank you very much, Mr. Chairman. Mr. Traficant has asked most of the questions I would have asked, so we have saved a lot of time. Let me just pursue a few of them though.

First, I want to congratulate you, Mr. Colvin, your group, Building Owners and Managers Association International has put out some fine material. In the report of the Subcommittee on Government Management, Information and Technology, which will be out in another week, showing this trail from April 1996 up, we have used a lot of your material in the appendices. We hope the American people will take advantage of some of your checklists. So we thank you for what you have done.

Mr. Hantman, I have great respect for the office you hold. I remember coming and greeting you when you had just been sworn in. That's I guess the oldest office in Washington, D.C. besides that of the President. So it has a great tradition. I just want to say I'll get to some of the Y2K later, but by chance maybe, you have taken down these double doors that we have to fly through around here. I hope you never put them back because it has been wonderful to move toward those moving cars without having to have glass doors shoved in your face and everything else. Just leave it open. I figured that was one of your great decisions. I want to make sure it stays that way. Because when we move, we want to move. Mr. Traficant is always behind us pushing anyhow.

[Laughter.]

Mr. HORN. Now on the power situation, you mentioned in your answer to Mr. Traficant you had auxiliary power. How many days can you exist on that auxiliary power?

Mr. HANTMAN. We're talking about hours, sir. We're not talking about days. This is just emergency backup service so that people can get out of elevators, that there is enough lighting at locations that allow people to egress buildings. There is no emergency power to keep buildings in full operation.

Mr. HORN. Yes. I think we have got a major problem here. Very frankly, the Capitol ought to be self-sufficient and be able to survive any mess that surrounds it. There is no question that there is going to be some power problems. I have held hearings in six cities over the recess. One of my worries is the embedded chip bit that controls the power distribution in many, be it nuclear, solar, wind, hydro, whatever it is, that that's something we really need to remedy up here then. I would hope you would go to the relevant Appropriations Committee and to Mr. Thomas on the Legislative Oversight Committee and say hey folks, we have got to do better than we can. Emergency rooms in hospitals face exactly what you are talking about. There we have tremendous embedded chip problems in most of the hospitals of the country, and the emergency rooms in particular. But I think on the auxiliary power, you have got to have more than a few hours around here.

Mr. HANTMAN. We have submitted a report relative to the possibility of a co-generation plant. Our plant is an aging facility and with the EPA criteria eliminating coal burning, things like this, we really need to address our major power plant issues right now, not only with respect to chilled water and steam, but possibly the power as well. This is an issue that the Congress needs to address.

Mr. HORN. Let me ask Mr. Barram this question. I think it happened, as I mentioned, to you before the hearing began. If we asked GSA to make sure that software bought by the Federal Government was 2000 compliant and that hardware was 2000 compliant, now is GSA doing that?

Mr. BARRAM. Yes. We are. I want to look into it a little bit more based on your question, but for example, when you as a customer, if you get on GSA Advantage and you select a product, when that product comes up, it tells you whether it's Y2K compliant. There is a logo. I think it's that Y2K logo in blue, this one here that Shereen is holding up. I believe it is also true--that's true for software and hardware when you buy them on GSA Advantage.

Suppliers have to say that their products are Y2K compliant or not in the information that our customers use to buy them. So we are providing that 'good housekeeping seal of approval.' The contracts we're signing with these suppliers require this information.

Mr. HORN. In the last quarterly report to OMB and to our subcommittee, we gave a lot of F's and a lot of D's. That partly was because we had asked the question what is your contingency plan if something goes down. The contingency plan is going to be tremendously dependent on the telephone system. Now I happen to live a two minute walk from my office in the Cannon House Office Building. I have been without telephone service from Bell Atlantic four times now with absolutely no service for as long as three weeks. They say oh gee, it's the switch. Well, that doesn't exactly hearten--

Mr. BARRAM. At where you live?

Mr. HORN. Yes. In Hill House, two blocks from here. No telephone service. Now that is going to happen all over the place. I don't have much faith in the telephone service. I guess I would ask you what is your contingency plan if all of the rest goes kaplooey, be it embedded chips or whatever it is.

Mr. BARRAM. Well, you know, we use America's telecommunications industry to provide telephone service to our Federal customers. There is some discussion about a Federal system, but I don't think that it is ever going to get there. So I don't think there is a simple answer to the question because that is such a catastrophic notion. It's not just the Federal government that would be hurt. It would be the whole economy, which would be disastrous of course. So I am convinced that I have much more faith I think than you do in our industry partners. For those parts of the Government that are critical at a moment on January 1, and in the time it takes to gather the systems back, we have other mechanisms, radio, to communicate.

Mr. HORN. Well have you ever done a mock emergency and pretend and put some programs in to see if it can cross the date line? Because I'll tell you, Lubbock, Texas just did it. They did it at night. They sprung it. They told everybody there was going to be that emergency sometime. It happened. They learned a lot from that. You might want to talk to Lubbock, Texas.

Mr. BARRAM. Sure. We have done a number of tests. We're in the middle of doing tests to see what happens when you artificially change the date to January 1 or fool around with that leap year date. For example, in I forget which, whether it was the Anderson building that you don't want to be in in Long Beach because the rent is so high--

Mr. HORN. I saved $50,000 by not paying rent.

Mr. BARRAM. I knew I shouldn't bring that up.

Mr. HORN. I baptism all GSA Administrators with that story. You're not the first.

[Laughter.]

Mr. BARRAM. I know. I forget which building it was, we have done some tests in buildings, for example, when you tell an elevator that it's February 29, the year 2000, which it doesn't expect because it's one of those other dates, it just ignored it and thought it was March 1 and went on about its business.

The real question on those things are we have got to be really smart about what events and what systems take down critical functions and which just stop working and we work around them for a minute or an hour or a day until we figure it out. That's I think the biggest challenge we have in this whole subject in our system. Internationally it's a different story, I think we have much more complicated and I think more scary prospects.

Mr. HORN. Now you have been at GSA either as Deputy Administrator or Administrator for about what, six years now?

Mr. BARRAM. I have been at GSA two-and-a-half. I was at Commerce before.

Mr. HORN. Oh, that's right.

Mr. BARRAM. So I have been in Washington five years.

Mr. HORN. Has any exercise ever occurred in the Executive Branch on using telephones, using radio, all the rest, pretending there is an emergency, and see what happens?

Mr. BARRAM. I don't know. I'll be surprised if it hasn't.

Mr. HORN. As Administrator, I am sure they would have told you. But I will tell you what will happen when I've done it on a campus that I headed. In the first place, the radios don't work because of the most of the spectrum is on the east coast. So you can't even relate in L.A., which has 81 cities in Los Angeles County, 10 million people in the county. The police departments can't talk to each other because all the spectrum was on the east coast. Now they are slowly fixing that, but that is what you need to go through here to know what is going to happen. I don't see, I mean in the first place, the administration procrastinated on this for three years. Finally did something in February when we had asked the President years before, put somebody in charge. He did, Mr. Koskinen, a very fine man. But he is playing catch-up. We all are playing catch-up. The question is, will these systems be inter-operable and work because if alluded stuff comes into your system from somebody that hasn't cleaned it up, like Financial Management Service, you have got a problem. Your silence on the telephones means a lot to me. I can tell what silence means. It means we have got trouble.

So all I can say is I hope the administration starts doing a few exercises, and not just assume because somebody told them that it's going to work. Being lied to by computer salesmen is only equal to being lied to by used car salesmen. I learned that many years ago. So I have absolutely no faith in what a computer company tells me. I have never known one thing where it's been on time, for example. I have never seen a corporate CEO that has even been able to tell us they have been on time. I know university CEOs, they are never on time. They promise it. It doesn't happen. That disturbs me on what we are dealing with.

Mr. BARRAM. Can I amend my silence a little bit and say that our Federal Technology Service, where our telecommunications are, is developing extensive contingency plans. So we are asking that question that you are asking. We'll have a contingency plan, even though I may say to you I have more faith than you might in the telecommunications system. We are developing a contingency plan in case.

Mr. HORN. Yes. Well, my last question would simply be do some experiments. The FAA is a good example. Last year they had a problem in their radar system. They put the stuff in the laboratory, thought they had fixed it. They put it back in the tower. It was absolute chaos. It didn't work. They had to relate to it in terms of a real operational situation. That is all I am asking. If you are going to get into this business, let's pretend that it's a real operation and make it act like that and see if the systems work.

Well, I thank you and wish you good luck.

Mr. BARRAM. Thank you. I'm sure we'll be continuing to talk about this.

Mr. KIM. Thank you. The gentleman's time has expired. At this time, the Chair recognizes Mrs. Norton, the gentlelady from the District of Columbia.

Ms. NORTON. Thank you, Mr. Chairman. I would like to ask each of you a question about security. Perhaps the worst thing that could happen with the Y2K problem would involve security of the institutions for which each of you is responsible.

I should preface what I am going to say by indicating my concern at how the Government in all of its parts is going at security--that I just think we are really in the stone age, perhaps the industrial age, of thinking through how to manage security when there is a new technology, a new threat, a new terrorist threat of a kind unheard of, unrecognized in this country. So the most we can think to do, to name a particularly primitive example, when Pennsylvania Avenue--when the tragic Oklahoma City bombing takes place, they say okay, close down the avenue. No understanding of how to handle security when you are in a complicated city, an urban setting. That is where the Federal Government is going for the duration. So I am very concerned about the industrial age approach to 21st century security problems. All around I see the kind of approach to security that I would have expected in 1950, you know, if there was going to be a bomb thrown some place. Obviously it gives me less confidence in whatever is going to happen on Y2K.

I do think that the notion of a visitors' center, and I have introduced a bill for a visitors' center, is an example of thinking outside the box. We of course have been thinking in the Capitol, doing a lot of the old thinking, you know, where can we put a barrier here, where can we put a stone wall there. But I don't blame that really on you, and I don't blame the Smithsonian for not having a 21st century approach to dealing with the security of people who come into your institutions. I know what Mr. Barram faces with the diversity of institutions he is responsible for.

My own sense is that unless we get a kind of, for lack of a better metaphor, Los Alamos approach to how to secure complicated urban environments against terrorism--that is, the people whose only job it is to think at the highest level of analysis and knowledge about an entirely new problem--that we will leave it to bureaucrats to kind of muddle along and do the best way they can until something blows up in their faces.

So my question is not essentially addressed to you. I think in this Congress we have not faced the nature of the enemy. Closing down streets, labeling streets level I to IV, saying we are going to take the parking meters out on one side. Of course that means that the people on the other side are in danger. I mean that kind of pedestrian thinking about a new threat that we have never faced before is very troubling to me. It's troubling to me as I sit in this building, which is a high level target.

Short of the Congress authorizing the kind of real investigation it will take to bring our security efforts into the next century, while we are waiting for that, I would like to ask each of you what your best efforts are at securing the facilities for which you are responsible.

Mr. COLVIN. Let me start if I may, since I am not representing the Government or any agency thereof. I read an article not long ago which is entirely unrelated to this problem, but which gives some very good advice. All of us must have written contingency plans and must take the position that the worst could happen. When you assume that, you begin to step down in levels of technology.

If a system is broken down, you look to see--what did you replace when you got that microtechnology? You drop down a level of technology. You continue to reduce your levels of technology until you reach an attainable level. That attainable level may be the Pinkerton's Guard, the Burns Guard, a commercial guard service. In the case of the Federal Government, it might be additional Federal protective officers. But as your technology fails, you seek a level of technology which is sustainable and manageable until that point at which you can restore your highest level of technology. But it requires an excellent contingency plan.

Mr. HANTMAN. As you pointed out, Congresswoman, the issue of a visitors' center is one thing that I too share as a very important component of an integrated security system up here on Capitol Hill. The concept of greeting with grace and respect some 95 percent of the visitors that we have at a distance from the Capitol itself, and being able to have them go through whatever security magnetometers we need to have them go through safely, and in an area where they can in fact learn about what the Legislative Branch of our Government is all about, what the history of our country is all about, and what they are going to be seeing when they take a tour of the Capitol, is very important. So I certainly concur with you that is thinking out of the box. That is something that is a win-win situation, I think for everybody.

As far as objectionable security measures, clearly one of the issues that we brought to Congress and did get an emergency appropriation for is to remove the jersey barriers and the concrete planters that we have all around and replace them with more respectable cast iron bollards that can serve the same purpose of perimeter security while also retaining the open nature of Capitol Hill. This is the people's building. All the buildings that we work in, all of the House office buildings, the Senate office buildings, the Library of Congress, are all meant to be accessed by the public.

What that really means though is that our first line of defense becomes the Police Officers. The increase in manpower that's been requested by the Capitol Police Board really addresses that. The type of electronic devices that support these clearly could have electronic failures down the line, but since we're not putting up a fence as the White House has at this point in time, and there is no plan to close streets as well, the concept is that if we have a visitors' center, we move most of our visitors out. We check them and they are greeted that way. Those people who come to the doors still need to be met by our uniformed security guards, our police force, and have enough adequate protection over there for us to assure that those folks who are entering our buildings are there to see their Congress people and do the business of the people or to tour. So there is no 100 percent solution. There are components that come into an integrated program that we really need to work on. That is in fact what the Capitol Police Board is trying to do.

Mr. HEYMAN. Well I really don't have to add very much to that. You are in an enormous dilemma in a museum with respect to controlling access. In some of our museums that are heavily visited, take Air and Space as an example, if we ever had to put people through magnometers, et cetera, we would cut down the numbers of people who go to those museums enormously.

I personally only see two things that we can do that are helpful. One is really constant surveillance by the guards who are in our museums, and continued training and sensitivity with respect to what they are looking for. We will run into trouble sometimes because we'll hassle people who should not have been hassled in an exuberance to protect. But I think we have to rely a lot on people.

The other thing that I would really like to do is in some of the more critical areas that might be terrorist targets, I would really like to get parking away from those areas because I just went by Air and Space one night. There was a truck parked right there. I had absolutely no idea why it was there. It really worried me a lot because it would seem to me that the Air and Space Museum would be a target for a truck bomb.

Ms. NORTON. Let me stop and add but there are no magnometers as you go into these buildings.

Mr. HEYMAN. Pardon?

Ms. NORTON. There are no magnometers.

Mr. HEYMAN. There are none.

Ms. NORTON. So this is what I mean. Now you were bothered by a truck, but anybody could walk in the building, leave a bomb in the bathroom, and all of you all are gone.

Mr. HEYMAN. I think they are very tough choices. I have really thought about that one. At least I personally have conclude that I would rather take the risk than putting everybody through magnometers. That might be a wrong decision--

Ms. NORTON. No. It's probably not a wrong decision, but it does illustrate my point.

Mr. HEYMAN. I think your point is a good one.

Ms. NORTON. There is no reason to believe that the truck is a greater danger than individuals walking in with whatever they are carrying with them and blowing the joint up. Our approach is to look at the last catastrophe and assume it's going to be the next one, although I presume terrorists are smarter than that.

Mr. Barram?

Mr. BARRAM. Nobody understands the dilemma better than you do. I think we are going to have to have a congressional and administration very high level look at this or we are always going to live on this dilemma with no real good answers.

We have done some things that are somewhere between old thinking and where you just talked about, like our building by building security plans. They are at least better than just blanket the same everywhere. We have at a hearing last week where both of you at least were here, we talked about the things we are thinking about with our FPS, which provide physical security to our buildings and the changes that we are working on in terms of cross training and sharing information and resources. Those are steps along the way.

But until we are willing to and able to address the issue at the level that you just described, we are going to have this kind of conversation.

Mr. TRAFICANT. Would the gentlewoman yield?

Ms. NORTON. I'll of course yield to the gentleman.

Mr. TRAFICANT. I would just like to say the subcommittee is undertaking a reform bill for the Federal Protective Services, one of the most important pieces of legislation this entire committee probably will address this year. Now though the Smithsonian is not protected by the FPS, it also raises some questions as to maybe perhaps how the FPS may be more widely used and should be considered. But that legislation is very important. It speaks to some of the issues you bring forward, because all the technology in the world is not going to protect these buildings.

Ms. NORTON. And of course Mr. Hantman has testified that he is depending on people rather than magnometers.

One more question, if I could, Mr. Chairman. I have a question for Mr. Hantman. You yourself have in your own way indicated that mission-critical involves anything that keeps people from doing their jobs. You are of course aware that you have had pretty stormy labor management relations since coming to the job, that the Y2K problem is a matter not only of systems but of people. I would like to ask you about the problem that has surfaced about the reduction in the staff, particularly that clean the buildings at night and the deep demoralization in your shop, where people feel they are getting more work and you are not filling positions, although your budget has not been cut. Then I would also like to ask you where you are on the Equal Pay Act suit that was brought almost as you walked in the door.

Mr. HANTMAN. With respect to the last issue, Congresswoman, our counsel and the Council for AFSME, Local 236, are meeting with judges under the direction of the Compliance Act, the Compliance Board in fact is holding hearings on that. We are totally open in terms of what we are talking about. I am hoping for a resolution of that fairly soon.

Ms. NORTON. Are you trying to mediate and settle this case?

Mr. HANTMAN. We are trying to bring facts and bring issues to the table that we can all agree on and so that we can understand what the realities are.

Ms. NORTON. So you are contesting the case even though they show that there is a dollar difference between what men and women are paid who do the same or similar work. I mean you are continuing to contest the suit then? You are not trying to settle the suit.

Mr. HANTMAN. We are not contesting the suit. What we are trying to do is have impartial outside fact-finding in terms of the job descriptions, to come in and determine whether it's the--

Ms. NORTON. That's known as contesting the suit, Mr. Hantman. Okay. Would you then move on? Because I am telling you, your shop is one of the most demoralized shops I have ever had knowledge of. It's located right here. It could have an effect upon our security.

Let me ask you about the problem with the night laborers whose numbers have been cut while the work remains the same.

Mr. HANTMAN. Yes. We are doing benchmarking with the outside world in terms of Federal as well as the private sector to take a look at the work load that normally should be appropriate for this type of function. We are going to be looking at how that measures against the productivity that we have internally and trying where it's inappropriately been cut back, to support that, and take a look at what kind of staffing levels we really need to have for the Congress.

Ms. NORTON. Have you been meeting with your union concerning what you just described?

Mr. HANTMAN. With whom, please?

Ms. NORTON. Your union.

Mr. HANTMAN. Two weeks ago we had a meeting with the union on this, yes. We have a person specifically dedicated full-time to working with the union and talking about these issues.

Ms. NORTON. Finally, just let me urge you that with respect to the outstanding lawsuit, most--I am a former chair of the Equal Employment Opportunity Commission. Almost none of these cases were allowed to go on and on. In our system of justice, there's usually something to be said on one side and something to be said on the other side. You will pay a terrible price if you do not find a way, given the time you have been here already, to bring this suit to some kind of resolution, even if it isn't the exact victory that you might desire. Let me say also I am very concerned about the night laborers, about the laborers in the day as well. If you are in fact doing a study design to see whether or not the staff levels, their productivity, and what should be required is on line, then I would urge you to hasten that work as well so that you can bring your labor relations up to the point where any new architect would want them to be.

Mr. HANTMAN. Congresswoman, I fully agree with you. There is no desire on my part whatsoever to prolong this. I would like to have it resolved in a fair and equitable manner.

Mr. KIM. Thank you. The gentlelady's time has expired. At this time, the Chair recognizes Mr. Horn for an additional 30 more seconds.

Mr. HORN. I just want to say to Mr. Barram, I agree with Mr. Traficant. I think the Federal Protective Service is an outstanding group. A few years ago when we had a series of death threats, threats of destroying our district office and everything else, there was only one Federal service that was awake and would help us. It was the Federal Protective Service. They did an absolutely superb job. So I think you can be proud of the group in Southern California. They are stretched thin over hundreds of miles in the case of California. There just weren't that many at that time. Now maybe that has been beefed up. But I think you can feel very good about that.

Thank you, Mr. Chairman.

Mr. KIM. Thank you. At this time--

Mr. TRAFICANT. Mr. Chairman, will you yield a quick question pursuant to Mr. Horn's analysis there to Mr. Barram?

Although it's not on the Y2K problem, just briefly. One of the major issues of the FPS reform bill and the only area of contention from what I see, is the PBS opposing to a change in jurisdictional structure of the FPS becoming its own authority, that instead of being under and reporting to the PBS director, would report directly to the Administrator of GSA. Congress believes that is a very important move. The Justice Department in some of their studies had even recommended it. What is your position at this point, if you could?

Mr. BARRAM. I think it should stay under PBS.

Mr. TRAFICANT. Why?

Mr. BARRAM. Because we are protecting buildings. That's where our--GSA has three major parts. We do buildings, supplies, telecommunications and technology. The Federal Protective Service is going to be spending all of its time working on things that are building-oriented.

Mr. TRAFICANT. Not to belabor it, and I'm going to get on with the committee's business here, but is not the major function of PBS real estate? Is not their first priority real estate, sir? Yes or no?

Mr. BARRAM. I'm sorry?

Mr. TRAFICANT. Isn't their first responsibility real estate?

Mr. BARRAM. No--it is one of their more important responsibilities, clearly. Real estate is their most important responsibility. Protecting the people in the buildings is a very important responsibility inside of that overall responsibility, it seems to me.

Mr. TRAFICANT. One last question. The PBS director, the FPS director here is the former chief of Montgomery County. If the sheriff of Montgomery County had a problem, would he call a mayor, an administrative assistant or would he call the police chief?

Mr. BARRAM. Someone in Montgomery County? The police chief.

Mr. KIM. Thank you. At this time, the Chair recognizes the gentleman from Tennessee, the Aviation Subcommittee chairman, Mr. Duncan.

Mr. DUNCAN. Thank you very much, Mr. Chairman. I'm sure that none of you regard yourselves as Y2K experts, but I'm also sure that you have either beforehand or in preparation for your testimony here today read a lot about this problem. And I'm just curious.

One week ago, today, we had a hearing on this as it relates to aviation and there were two Y2K experts who gave us a general overview of this entire problem. Both very, very intelligent men. One recommended that we go back to the year 1972 because it--the days matched entirely the year 2000 and he thought it would take potentially several years to straighten out all of this.

The other man was much more pessimistic and predicted that at places around the country, not entirely the whole country, but he said at places, major brownouts, possibly even riots in some cities. I'm sure you've read in preparation for your testimony that some people--and it seems to be a minority--but that some people are predicting sort of doomsday type problems.

And yet, all of you seem to say and you've given me the impression--and I'm happy to hear this--that you feel that this is just going to be a minor type--absent the horrendous expense, disregarding that for a moment--that this is just going to be a minor type problem or there are going to be minor glitches or minor inconveniences that won't last very long. Is that accurate, Mr. Barram? We'll start with you.

Mr. BARRAM. In the last month and the half, I have listened to two extremely intelligent and knowledgeable people on this subject, one of whom predicts an amazing international catastrophe and another who thinks that we are way, way overconcerned about this and that even the embedded chip issue isn't as big an issue as people think because he says most of them and most of the pieces of equipment with an embedded chip that has a problem will just simply fail and sit down quietly.

Now, I think the issue and the problem is somewhere in between and I think we have a very significant leadership and management challenge here of being prudent in how we spend money to solve a problem that we'll never fully understand until January 1, 2000. And what--we have to be prudent. We have to be smart. We have to be very careful about what systems are really critical and we have to be honest in how we share information and what we've tested.

As I said earlier, I believe we have the intent and the energy and the intelligence and knowledge in this country to do a good job, and in the Government as well. I worry much more internationally. We are dramatically farther ahead. And what I worry about, frankly, is that we're going to have to do some things to help other countries. So we better--one of the reasons for getting ahead of the game now is so you can have a little energy left when you have to help others.

In our case, we have our own systems which we believe we are on top of. We are working very hard, having BOMA as a partner is terrific because we want to have all the buildings that we're responsible, that we're paying attention to those in smart ways. So if I've given you the impression that it's a potentially small problem, I don't mean to. I'm trying to be calm and rational about the things that we're doing to stay on top of it. I think we are ahead of--I think we are on top of the issues.

Mr. DUNCAN. Do any of the other panelists wish to comment?

Mr. HEYMAN. Well, I really know much more about what's going to happen inside the Smithsonian than I do what's going to happen outside. I'm pretty confident about the inside. One of the things that I've learned in this hearing is that I think we have to start to think about what happens if other systems fail, upon which we depend. And I think we'll start to think--

Mr. DUNCAN. That's one thing I've read. I've read--in fact, Senator Bennett had a column in the Wall Street Journal a week ago yesterday and he said that one of the main problems was going to be that CEOs were preparing their own companies, but the big problem is going to be that everyone, and I assume all of you, deal with so many hundreds or thousands of other companies or suppliers, big and small, that the problem's going to be with your suppliers or with the companies that aren't doing as well as you're doing.

And, last week at our hearing, we heard, for instance, from the Air Transport Association that all of the major airlines were in good shape, but they weren't sure about all their suppliers. And, in addition, they had surveyed 81 airports and they found that 35 percent of those airports had no Y2K plan whatsoever and that another I think 30 percent were way behind.

Are you satisfied that--are all of you satisfied that all of your suppliers and people that you're dealing with have--are doing what they need to be doing?

Mr. BARRAM. Let me comment quickly. We have a web page that lists 10,000 pieces of equipment that lists the ones that are compliant, which is the big list, and the many fewer that are non-compliant. List the company providing it, the model number, and a description, just a paragraph or two telling you why is this non-compliant and what you should do about it. And then, the last column says how many dollars it would take to fix it. In some cases it's zero. In some cases it's $25,000 to replace it or something or maybe more in some very few cases.

We are working very hard with our suppliers. We are trying to identify every piece of equipment we can that--so we know what we're up against. And we're trying to share this--and we want to share this information with anybody. It's a public web page. Anybody can look at it. I would give you the letters, but you would find them very uninteresting to write down.

Mr. DUNCAN. Okay. Mr. Hantman, did I understand you correctly that said that you had some coal-burning capacity, but that the EPA would not let you use it or something to that effect?

Mr. HANTMAN. The Capitol power plant supplies chilled water and steam to the Capitol complex for all of its air conditioning and heating needs. It used to, some 20 years ago, have the ability to generate electricity itself. It no longer has that capability.

We have submitted a plan for a possible cogeneration plant that would do both the steam, the chilled water, and power with possibly an outside partner. This is under consideration. This was submitted a number of months ago to the Congress as a possible alternative to where we're going, because, basically, our existing generators for chilled water and for steam do, in fact, burn coal primarily. And we have a large coal pile.

EPA standards are being strengthened. And, therefore, within--by the year 2003, I think we've got a--we'll have had to transfer our generating capacity to oil, to, basically, to gas. So this is something that the Congress has not acted on yet, but there are recommendations before the Congress that look at cogeneration possibilities going forward.

Mr. DUNCAN. Well, I hope the EPA will be a little more flexible in light of this--of the potential problems that we face here. And I'm like Mr. Traficant and Mr. Horn and some others. I think potentially the biggest problem of all and something that we should all be asking about or talking about or trying to do what we can to see that the power is not interrupted. Because everything we all do is so dependent on our power supplies. And so that--I think that should be a big, big concern for all of us.

Mr. Colvin, you wanted to say something.

Mr. COLVIN. Yes. There are two instances that I can relate to specifically. One, BOMA, within 2 years, bought 35 brand-new, desktop PCs which we decided to test for Y2K compliance. The first several were fine. The assumption would be that all 35 were fine. 33 were. 35 were not--excuse me, the other 2 were not. They had chips from a different manufacturer.

In my particular area--I'm from Birmingham, Alabama, we are served by the largest investor-owned power generator in the United States, the Southern Company. Recently in our local newspapers, we had a long series of Y2K articles. I know that the Southern Company, and I can't quote you the dollars and cents, but Southern Company has devoted major resources throughout their power grid to ensure that they are able to deliver energy in a timely fashion on January 1, 2000.

So BOMA's position is that we need to have a good contingency plan and, in the words of Senator Bennett, we need to have that best contingency plan that you never use. That's our hope and ambition. We do not think the sky is going to fall. We do believe that there may, indeed, be some problems. But those problems will be manageable if they are undertaken with a good contingency plan and a lot of forethought.

Mr. DUNCAN. All right. Thank you very much, Mr. Chairman.

Mr. KIM. The gentleman's time has expired. Before we take a recess, I'd like to just take a brief comment, just a question for Mr. Barram. It's still puzzling me that you have a 600 to 700 buildings--no, 7,600 buildings--

Mr. BARRAM. 8,600.

Mr. KIM. It's going to cost you a $9 million, but OMB requested $5.5 billion for this Y2K problem. Can you give us later, just rough estimate. Where is this cost coming from?

Mr. BARRAM. We have 8,600 buildings. The number that you're referring to is the overall amount of money that the administration has estimated, $5.4 billion and $3.25 billion in the supplemental. That's for replacing all kinds of systems. I'm assuming that includes the FAA systems and Defense systems and all kinds of things.

What I'm talking about--I talked about in my million--$9.7 million was the specific Y2K fixes in GSA or under GSA's control. That's obviously a tiny fraction of that overall amount of money that it will cost the Federal Government.

Mr. KIM. Any other questions from the members. I see none. Well, thank you, ladies and gentlemen. That concludes the public buildings portion of Y2K hearing. We'll next turn our attention to our Nation's surface transportation infrastructure problem. Before continuing, we'll take a short recess.

[Recess.]

Mr. PETRI. [presiding] The subcommittee will resume. And I'd like to ask panel number two to move to the witness table. We'll now turn our attention to issues under the jurisdiction of the Surface Transportation Subcommittee. And first we will hear from a panel of pipeline experts.

There are over 1.4 million miles of natural gas and oil pipelines crisscrossing the United States. For the most part, they go unnoticed, providing safe, quiet, and efficient transmission of oil and natural gas. Located underground or in sparsely populated areas, many pipelines rely on automated systems to monitor and regulate the pressure and flow.

A Y2K-related pipeline failure could cut off our supply of crude oil, making it impossible to provide the gasoline and diesel fuel we need to drive our economy. Without properly working pipelines, some areas might not get the natural gas they need to keep their families warm. In a worst-case scenario, pipeline failure could result in severe environmental damage or even the loss of human life.

After we hear from this panel, our final panel will address highway-related problems. Many of our Nation's roads depend on intelligent transportation systems to operate smoothly and efficiently. Some fear that January 1, 2000 may paralyze traffic and increase safety risks to the public. Timed signals may no longer be timed. Reversal lanes may reverse by themselves and electronic passes may not permit passage. Metropolitan areas are at particular risk since they often depend on ITS to change traffic patterns and increase road capacity during peak travel times. Unfortunately every traffic control system's different and it's not clear how each device will respond at midnight, January 1, 2000.

I look forward to hearing from these panels and hope that they can provide some assurance to the public that these problems will be addressed in time for the new millennium. And I'd like to turn to the senior minority member, Mr. Rahall, for any comments he might make.

Mr. RAHALL. Thank you, Mr. Chairman. I have no opening statement, except to once again commend you and Chairman Shuster for conducting these hearings. I note that on the panel we're now about to hear from on pipelines, our first witness is Dr. Stephen Van Beek, the Deputy Administrator of RSPA. I understand this is your maiden voyage testifying before a committee of the Congress. We welcome you.

compliant. This requires a comprehensive program in which companies examine their own systems to ensure Y2K compliance. One barrier industry has mentioned to me personally, and to others in RSPA, to addressing the Y2K problem has been the fear of inciting lawsuits by disclosing difficulties with systems. The passage of S. 2392, the Year 2000 Information and Readiness Disclosure Act, should encourage industry to provide and gather information from associations and government agencies.

Although industry must take the lead in identifying and repairing any year 2000 problems, government must take the lead in ensuring that all parties are working together to address the issues. Government, and in particular OPS and RSPA, must raise public awareness, coordinate information on potential issues and solutions, and ensure that companies are actively addressing all identified problems.

In our discussion with industry associations and specific companies, RSPA's Office of Pipeline Safety has identified year 2000 issues with a variety of components and control systems. Pipeline operations are dependent upon SCADA, Supervisory Control and Data Acquisition systems which contained embedded processors and remote sensing devices. Many SCADA systems also append a date to information received, adding a potential failure point.

These vulnerabilities are clear to many operators and progress is being made. RSPA will carefully monitor industry progress and the backup systems already in place that will allow pipelines to continue to operate safely, whatever the eventuality.

RSPA's outreach strategy is to work directly with the natural gas and liquid pipeline industry and collaboratively with the President's Council on Y2K Conversion to address Y2K and other millenium-related potential issues. We have stressed the need for year 2000 preparedness with a variety of industry associations. We have also met with a number of individual pipeline companies. We serve on the council's Energy Sector Oil and Gas Work Group, which is chaired by the Federal Energy Regulatory Commission represented here today. This work group is developing a focused, coordinated effort between Federal agencies and industry associations that will prevent redundant efforts and ensure that all companies in the oil and gas sectors are reached.

We keep RSPA's State partners informed through periodic mailings and participation in national and regional meetings. For example, recently we sent an advisory bulletin to industry and our State pipeline safety partners that described the potential impact on pipeline systems, outlined the work group's strategy and identified industry and government contacts for companies needing advice.

Working with the industry, RSPA participated in a comprehensive industry survey to address company prioritizations of mission-critical systems, online testing, supply chain coordination, communications, infrastructure support, and contingency planning. Although some concerns remain, RSPA is cautiously optimistic about the results of the survey. Findings were presented at a public meeting held at the Federal Energy Regulatory Commission on September 18, 1998, and are also available on the President's

I might by way of biographical background mention that, Dr. Van Beek, since joining RSPA in February of 1998 has played a key role in shaping RSPA's new strategic plan, research, and technology strategies, emergency preparedness and response activities, and new regulations for the pipeline and hazardous materials safety program. As Deputy Administrator, as a member of the Secretary's Management Council, he's taken a special interest in facilitating DOT efforts at strengthening ties with minority serving institutions, including colleges and universities.

He received his doctorate and master's in government and foreign affairs from the University of Virginia. His Bachelor of Arts degree is from the University of California, Santa Barbara. He's a member of Phi Beta Phi, National Honor Society, and several professional organizations.

We welcome you to the subcommittee this morning as well as Mrs. Hirning.

Mr. PETRI. As you both know, your full statements will be made a part of the record and we invite you to take about five minutes to summarize your remarks.

Dr. Van Beek.

TESTIMONY OF DR. STEPHEN D. VAN BEEK, DEPUTY ADMINISTRATOR, RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION; KATHLEEN HIRNING, CHIEF INFORMATION OFFICER, FEDERAL ENERGY REGULATORY COMMISSION; ANNE WILMS, CHIEF INFORMATION OFFICER, SONAT, INC., ON BEHALF OF THE INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA; AND ROBERT DARWIN, EQUILON PIPELINE COMPANY, ON BEHALF OF THE AMERICAN PETROLEUM INSTITUTE, AND THE ASSOCIATION OF OIL PIPE LINES

Dr. VAN BEEK. Thank you. Mr. Chairman and members of the committee, thank you for the opportunity to appear before you today to discuss the year 2000 computer problem. I am Stephen Van Beek, Deputy Administrator at the Research and Special Programs Administration, U.S. Department of Transportation.

RSPA, as we're known, has jurisdiction over the Federal pipeline safety program. Y2K is an issue that we take very seriously and that RSPA's addressing, both within the agency and among the regulated community, including pipelines. While I will be happy to respond to any questions concerning RSPA's internal systems, which are ahead of the latest guidelines, my testimony today will focus upon RSPA's pipeline safety program.

The year 2000 problem has the potential to cause serious disruptions in the transportation of oil and gas and other goods and services. Computers and software are used in almost every aspect of the transportation system, including transportation operations and all of the industries that support those operations, such as electric power and telecommunications. Moreover, a significant amount of infrastructure built in the last 30 years contain embedded systems that may not function correctly on January 1, 2000.

The scope and breadth of the potential problem requires that industry take the lead in identifying, testing, and repairing any computers, software, or embedded systems that may not be year 2000

Council web page. I'll let the FERC representative today discuss the survey in a little more detail.

While survey results are arriving, the working groups are already urging associations and companies to accelerate their timetables that were made evident in the responses to the survey. You will be hearing from industry today in more detail about their activities regarding year 2000.

In conclusion, the year 2000 problem is a serious issue that requires leadership and cooperation among government agencies and the private sectors if we're going to solve it. We are closely working with industry to identify and assess the potential problems and I particularly look forward to working with this committee and others in Congress in the months ahead. And I'm, of course, pleased to answer any questions that you might have. Thank you.

Mr. PETRI. Thank you very much.

Our second panelist is Kathleen Hirning, the Chief Information Officer for the Federal Energy Regulatory Commission. Ms. Hirning.

Ms. HIRNING. Thank you, Mr. Chairman, members of the subcommittee. I am the Chief Information Officer for the Federal Energy Regulatory Commission. I commend you for holding a hearing on this critical issue and appreciate the opportunity to speak with you today about the state of year 2000 readiness in the oil and gas sector. We have been working closely with the President's Council on Year 2000 Conversion and have served as a lead Federal agency for Oil and Gas Sector Working Group.

The working group is composed of a group of Federal agencies and 25 industry associations and growing. The oil and natural gas industry is complex and made up of a lot of sectors which must work together to deliver oil and natural gas across the Nation. The oil and gas industry has come together on this collaborative effort due to the interconnectedness of our infrastructure, sectors are dependent on one another, as well as their suppliers. Consequently, the need for cooperation and collaboration between government and industry across this entire industry is vital.

This working group has developed an industrywide survey and website to display survey results and information relating to Y2K readiness. Results of the initial survey represented in a public conference held at the Commission this past September 18, as has already been mentioned. Respondents to this survey represent, by volume, they account for about two-thirds of oil and gas consumption. Over 70 percent of the respondents were smaller companies. Although smaller companies outnumber large companies in responses for this survey, collectively, smaller companies account for a small volume of oil and gas consumption.

While there is the impression from anecdotal information that small companies are not paying attention to problems--Y2K problems, the oil and gas survey results indicate that many are working diligently towards achieving Y2K readiness. I bring that up because that was a concern of ours when we did the survey, was to make sure that we monitored the smaller producers and pipelines and distributors.

The survey asks companies if their Y2K plans include prioritization of hardware, software, and embedded systems, according to mission-critical functions. Eighty-five percent of those respondents included prioritization in their plans. Over three-quarters of the plans include, number one, testing; number two, supply team coordination with other companies, local emergency organizations, local governments, and other organizations that impact mission-critical functions. Also include supporting infrastructures, such as facilities, emergency response systems, and vehicle fueling.

Survey results indicate that the industry is in the process of fixing problems and has begun developing contingency plans with the primary focus on operations. About a third of the respondents who provided a date indicated that they expect their contingency plans to be ready by the end of this year, three-quarters by June 1999, and all by December 1999.

At the September 18th conference, industry representatives emphasized the value of continued cooperation with the Federal Government. They stressed the need for the Oil and Gas Sector Working Group to take a step towards creating a more formal joint program with both telecommunications and electric industries, which are crucial components that support the functioning of this sector, primarily because of their reliance on the electric sector, on oil, gas to generate power. The industry also relies on the transportation sector from rail to truck to ship and are concerned with how this sector is doing. They also expressed a need to reach out to States and internationally as the large companies, in particular, are multinational. This is an area where the Council can facilitate dialogue and coordination.

This first survey gives us an important benchmark from which to start. We are making progress. We still have a long way to go. It is critical to continue to increase the level of cooperation and information sharing and to be as transparent as we can with the public. We must acknowledge that not every single system will be ready in time, but we must also inform the public that contingency plans are being made to address these concerns.

The survey results provide an important baseline from which to monitor future progress towards readiness from quarterly surveys. Results from the next survey will only provide a measure of progress--excuse me--results from the next survey will not only provide a measure of progress towards measurement, but will also provide a tool to validate the results of the initial survey. Survey results will also point out vulnerabilities, help the working group assess where to focus its efforts.

The industry representatives concede there is still a lot of work that must be done before January 1, year 2000. However, they expressed a note of cautious optimism that survey results indicate that the industry, in general, is where it should be in order to achieve readiness well in time for the new millennium. Nevertheless, they are committed to expand the number of survey respondents and work to share information.

Mr. PETRI. Thank you.

Our next panelist is Ms. Anne Wilms, who is chief information officer of Sonat. She is here on behalf of the Interstate Natural Gas Association of America. I invite you to summarize your remarks in five minutes and your full statement will be made a part of the record.

Ms. WILMS. Again, my name is Anne Wilms and I'm chief information officer for Sonat, Inc. and I'm here to represent the Interstate Natural Gas Association of America. Just a little background on Sonat. We have an interest in almost 14,000 miles of interstate pipeline. We are an independent producer of oil and gas and we also are a marketer of both gas and electric power. And, as an actual industry person and having primary responsibility for year 2K issue at Sonat, I'm here not only to represent the Interstate Natural Gas Association of America, but also to give you some assurance that we, as a company, have taken exhaustive measures to ensure that we are, indeed, year 2000 compliant.

And INGAA early this year, prior to FERC conducting their more comprehensive survey, undertook a survey to evaluate where all the interstate pipelines in the company were as it--in the country, as it relates to where their position was, in relation to the year 2K problem. It was a voluntary survey. We had a 75 percent response to that survey.

And, as a result, we basically--and it was pretty similar in all the pipelines--categorized the problem into four areas of priority, number one being safety, we wanted to ensure that nobody was going to get hurt as a result of the year 2K impact. Second was that we would actually be able to deliver gas to the marketplace. Third was being able to account for and measure gas delivered. And fourth were our back office systems which are our HR systems, human resources, et cetera.

As it relates to safety, this committee itself has been instrumental in ensuring that the base infrastructure of the pipeline industry ensures safety and that, worst-case scenario, that we would basically be able to manually operate the pipeline. And, as Mr. Van Beek has testified, we are critically dependent on SCADA systems, which are supervisory, control, and data-acquisition systems which basically control the flow of gas and it's fully automated, but we can also, if we have a failure in that area, turn those systems off and manually operate the pipeline.

What I'd like to do is basically talk about what Sonat is doing, because it's very representative of what all these--the other companies are doing. And we address the issue in looking at it from what are our absolute critical systems, SCADA being one of those systems. And, in looking at that, what we are doing is we are looking at every single device on the pipeline. We're testing that device. We're also, before we even test it, we seek vendor compliance. If the vendor says it's compliant, we are not only assuming that it's compliant, we are also doing on-site testing. And then, third, even after we've tested it and we've assured compliance, we are developing contingency plans to ensure that, in case of a failure, that we can have either manual overrides of the system or that we have a secondary backup.

When we talk about the accounting for the flow of gas, our primary systems, which we depend on, are those systems which our customers actually log on, nominate gas, and then we confirm the actual flow of gas. We testing those systems. And, again, not only are we testing those systems, but we are developing contingency plans in case of failure.

And I think you've heard a lot about this through many of the other testimonies this morning. One of the things that we're critically dependent on is external providers of services. About 10 percent of what we is internally controlled. About 90 percent is supplied by external providers of service, such as the electric companies and the communications companies, et cetera. And FERC, I think, is being absolutely instrumental in helping us get all those industries working together as a group to assure that we have backup plans in place and that those critical outside sources are also doing their due diligence ensuring that they are year 2000 compliant.

Mr. PETRI. Thank you very much.

Our final panelist is Mr. Robert Darwin from Equilon Pipeline Company, who is appearing on behalf of the American Petroleum Institute. You are very welcome.

Mr. DARWIN. Thank you. Good afternoon. I appreciate the opportunity to discuss the pipeline industry's computer-readiness for the year 2000. I am Robert Darwin of Equilon Pipeline Company and I'm here today to represent the American Petroleum Institute and the Association of Oil Pipelines. The American Petroleum Institute, API, is a trade association of more than 400 members involved in all aspects of the oil and natural gas business. The Association of Oil Pipelines, AOPL, is a trade association of common carrier oil pipelines whose members transport over 80 percent of the crude oil and petroleum products that travel by pipeline in the United States.

As you've already heard, API and AOPL joined with other industry associations to sponsor a comprehensive survey of the oil and gas industry's computer-readiness for the year 2000. The survey was sent to more than 800 companies representing the supply of more than two-thirds of America's oil and gas consumption. The respondents included 57 pipeline companies responsible for some 70 percent of the crude oil and petroleum products delivered by pipeline. As reported, when we presented the survey data to the Federal Energy Regulatory Commission on September 18th, all respondents to the survey were confident that they will have resolved all computer problems by the time the new century arrives.

We will repeat the survey each quarter between now and the year 2000 so we'll know if that assessment changes. Our goal is to resolve any problems without compromising either the environment, the safety of our workers, or the community surrounding our facilities. Our preparations for the year 2000 are a natural extension of our industry's already extensive contingency planning. Oil and gas pipelines have long used sophisticated computer systems, many of which are custom-built. For the most part, the people who design and maintain those systems are a regular part of our staff. So they have a vested interest in ensuring they run smoothly.

We do use embedded processors for remote communications monitoring and control. These devices are commonly known as remote terminal units and programmable logic controllers. Since the late 1970s, we've also used embedded processors to regulate the rate of flow in pipelines, to operate alarms, to gauge liquid levels in our systems, and in the smart sensors that indicate temperature and pressure of our products in our pipelines.

We were extremely conservative in the initial design and rollout of these devices. We did not rely on date clocks for control and monitoring. We did not use magnetic storage for embedded processors. We did not use low-cost but relatively unreliable dynamic ram semiconductor memory. Instead, our embedded processors were designed to operate in ambient industrial conditions. They were designed to validate control actions on several levels before execution. Battery backup ensures uninterrupted power flow to the control systems. The software running our embedded processors is commonly known as firmware, meaning that it is not easily defeated.

Our people responsible for our embedded processors and other computer systems alerted us to the Y2K problem very early on. For some time now, we've been identifying and addressing potential problems. We are replacing equipment, rewriting computer programs, testing components of our system, and developing contingency plans. We are testing rollover to the year 2000; testing leap years; and testing access to historical data. We are also installing controls built around failsafe components and strategies. In short, we have already done many of the things the rest of industry is just now starting to address the Y2K problems.

As entrepreneurs, oil pipeline companies have an enormous interest in maintaining safe and reliable service. We do not want our pipelines shut down by events within our control. Our efforts to prepare for year 2000 have been aimed at ensuring that shutdowns will not occur and oil supplies will be available as needed.

Our assessment of the greatest risk to the oil and gas pipelines of the U.S. indicates that we are most vulnerable to failures in the support infrastructures, in particular, failure in communications and electric energy would severely impact our industry. A failure in communications can be worked through for a short period of time by physically manning each one of our operating sites. A failure of the supply of electric energy will immediately stop all liquid pipelines and most gas pipeline movements.

Can we absolutely guarantee no problems? The answer is, of course, no. No one knows the future and something can always go wrong. But our preparedness does mean that we can deal with any internal problems if and when they occur. Because we employ so many redundant control systems, the chances of a national pipeline system shutdown, due to an internal Y2K problem or anything else, are extremely small. But, assuming it did happen, it is highly unlikely that oil would escape from any pipeline. The bottom line is that if a problem does occur, no matter how unlikely, the industry will be ready and able to deal with it.

Mr. PETRI. Thank you. Mr. Rahall.

Mr. RAHALL. I have no questions, Mr. Chairman.

Mr. PETRI. All right. I just have one or two questions and they're pretty basic. And maybe, Ms. Wilms, Mr. Darwin, you might be able to help me with it, most of all. Isn't there--in the gas area, wouldn't there be a big problem beyond the pipeline getting into households? Or is that something that--

Ms. WILMS. Yes.

Mr. PETRI. Maybe even in stoves and other things. I suppose that might not be catastrophic just in the household. Would miss out on a meal, but--

Ms. WILMS. Unfortunately, you know, January 1, in some areas, is pretty cold, so it is pretty critical that we get gas to households. Fortunately, when you look at the local distribution side of the business--and we're working with that side of the business and FERC is helping us with that--their not as automated as the interstate pipelines are. They don't depend on embedded chips and technology to actually slow gas so they have a lesser issue as it relates to technology.

But even in that, we are working with our major customers, which include all the LDCs and even the smaller customers like the municipal. I'm working with them to look at their readiness as well as is FERC in the collaborative effort and looking at the industry as a whole to make sure that, you know, both the producers on the API and the interstate pipelines and then the downstream of the agencies can ensure that the end customer receives gas.

Mr. PETRI. Is there a kind of a line of equipment or chips or programs, after a certain date you can be pretty sure or 100 percent sure, are compliant and then a gray area and then those before, say 1986 or some such period, are just all bad?

Ms. WILMS. I can only answer that question--and we can get you a written response to that--but from our perspective, in looking at the systems that we have, we are physically testing every single device that has an embedded chip that is date-dependent. And ensuring that that, indeed, works and if it doesn't we will replace that device.

But downstream, my understanding is--and maybe you can answer the question better than I--that it is not as much of an issue because they do not have date-dependent chips to actually, physically operate the pipeline.

Dr. VAN BEEK. Yes, that's mostly true. And let me emphasize that, through our State program, we do listen and talk about the LDC local distribution company and municipality issues with folks and a lot of their concerns have surrounded the same sort of issues that have been confronting the big companies. And that is the reliability of electric utilities and telecommunications industries. One advantage of working with the localities is that a lot of times these utilities and the pipeline responsibilities are in the hands of the same folks. And so you get out and you talk to one and they have involvement in all three industries and a broad discussion of that ready for you.

Mr. PETRI. Thank you. Thank you all very much for your testimony and we hope that all goes well.

The final panel today is comprised of leaders in the service transportation area. And the kick-off witness will be a person who is very experienced and a senior member of the Federal Highway Administration, someone I've had the opportunity to eat with and work with on a number of projects, Ms. Gloria Jeff, who is the Deputy Administrator at the Federal Highway Administration. And she is accompanied by Dennis Judycki. And as soon as people can make their way up, we will start with Ms. Jeff.

TESTIMONY OF GLORIA JEFF, DEPUTY ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION; KATHY HOFTSTEDT, YEAR 2000 PROJECT MANAGER, MINNESOTA DEPARTMENT OF TRANSPORTATION; GORDON AOYAGI, CHAIR, EMERGENCY MANAGEMENT GROUP, MONTGOMERY COUNTY, MD, ACCOMPANIED BY DONALD EVANS, YEAR 2000 PROGRAM EXECUTIVE FOR MONTGOMERY COUNTY, AND CHAIR, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS INFORMATION TECHNOLOGY COMMITTEE

Ms. JEFF. Good morning, Congressman. It's good to see you again. You have received a copy of our written testimony. And let me try and shorten things up by just going with a much shorter oral statement.

Indeed it's my pleasure to testify today before you about FHWA's efforts to assure that, on January 1, 2000, our Nation's highway system is not only safe, but it will also be functional. We are attempting to achieve this under the leadership of President Clinton and Secretary Slater within the realm of safety, which is our number one transportation priority. We are working with our partners in government and industry to achieve this outcome. Our goals are that there will be safe, functional surface transportation in place on January 1, 2000. Based on our efforts to date, we are confident that we will have a safe system and that our efforts will have been successful in assuring the achievement of Y2000 compliance.

In September of 1997--and I'm sorry that Representative Horn is not here; Representative Horn recognized the Federal Highway Administration for the fact that we got started very early in our efforts to assure that our internal systems were year 2000 compliant. The Federal Highway Administration continues to work and make great headway in ensuring that all nine of our mission-critical systems have been assessed, modified, and compliant. We are currently in the process of testing them.

Meanwhile we are also forming new and expanding existing partnerships. We are using the Federal Highway Administration and U.S. Department of Transportation websites, as well as our headquarters personnel, our field personnel, software and technology, to provide technical assistance in three essential areas. The first is intelligent transportation systems. The second is traffic control systems. And then, finally, activities associated with financial, and human resource acquisition, and program implementation to non-Federal operators and managers.

In the area of intelligent transportation systems, FHWA has developed a very active outreach program. We are working with groups such as the National Association of Working Groups for Intelligent Transportation Systems and Public Technology Incorporated to provide focused outreach to local governments, to make sure that they too are focusing on this critical area. The Public Technology Incorporated entity was commissioned and has prepared a basic primer, copies of which we will be providing to the members, in which we talk about running out of time: Intelligent Transportation Systems and the New Millennium.

This is intended to be a mechanism by which locals will begin to see, in the era of intelligent transportation systems, the kind of actions that they need to take and the fact that the year 2000 is, indeed, an essential year and one that needs to be addressed, looking at their software and their technological capabilities. We also have a new ITS cooperative deployment network and its website is indicated in my written statement and has a forum for discussion of year 2000 issues, as well as case study information.

The Federal Highway Administration also took the lead in the One DOT effort associated with conducting a national ITS year 2000 summit in this past July. The summit was intended to move the focus from simply making people aware of the fact that there is a year 2000 problem to one of looking at what kind of collaborative and collective action could be taken. It was cosponsored, in addition to DOT, by some 22 major national professional and industrial organizations who have agreed to partner with U.S. DOT on this matter.

We brought together over 180 State, local, and industry leaders to look at what the assessment issues were and what kind of collaborative actions could be taken. The groups included entities like the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, the American Public Transportation Association, the American Association Port Authorities, the National Private Truck Council, and the National Electrical Manufacturers Association. This last group, Mr. Chairman, is a group that actually produces the technology that we use in a lot of our surface transportation systems.

The summit's participants shared progress reports on where they were in their own efforts and exchanged information on success strategies that could be employed by others. In addition, another outcome of that particular meeting was the production of another document,'Steps For Action', which we provided to the committee members. It's intended to focus on, again, the non-Federal participants in the process so that they will have an organizing tool by which they can begin the process of mapping, assessing, implementing, and taking corrective actions to address Y2K problems within their own mission-critical systems.

In addition to the summit, we also, in the area of ITS, have established an electronic forum on the Internet, within the context of the Federal Highway Administration website so that there's an ability to share information. And it's a two-way dialogue, so that it's not just dial-in and take a look at the information there, but you can ask questions and engage others in a chat-box format about these sets of activities. We also are utilizing the U.S. DOT's outreach action team to assure that there is communication not only in the Highway mode, but among the others as well.

Skipping ahead to the traffic control systems. These are critical systems. These are the mechanisms by which we manage traffic. And we are going to manage traffic in a safe manner. We are partnering with State DOTs and local units of government to make absolutely sure that the traffic control systems are in compliance.

I want to skip ahead to resource acquisition. I see the gavel and so I'm going to whip right along. To focus on this whole area of not just making sure they've got information, but how do they pay for it and how do they find the resources to make it happen. And we have gone through and looked at the eligibility requirements for Federal aid as well as motor carrier assistance and aggressively worked with States and metropolitan planning organizations to ensure, one, that they know what resources are available and, two, how they can streamline the process so that they can take advantage of the dollars that are available in TEA-21, in the traditional categories.

In closing, Mr. Chairman, I'd like to say that Secretary Slater and Administrator Wykle have emphasized the need to fix the Y2K problem to assure that we have a safe and functional transportation system. And, under their leadership, we are absolutely committed to ensuring that, when January 1, the year 2000, comes into place, that there will be a safe and functional system. Thank you.

Mr. PETRI. Thank you.

We turn now to, I think, a representative of one of the State departments of transportation that the Federal people are working with to tell us about what's happening in Minnesota, so far as the year 2000 project is concerned, Ms. Kathy Hoftstedt. Welcome.

Ms. HOFTSTEDT. Thank you, Mr. Chairman, for this opportunity to submit testimony regarding the year 2000 readiness of the Minnesota Department of Transportation.

Mn/DOT views year 2000 as a business, rather than a technical, issue. Our approach to addressing year 2000 issues is one of business continuation planning. Mn/DOT's greatest exposure appears to be in determining the year 2000 progress of its suppliers and business partners. Five potential areas of vulnerability for Mn/DOT are public utilities, trucking industry, railroads, U.S. DOT, and cities and counties.

In August 1998, Mn/DOT sent out a survey to 945 of its most critical suppliers to have them confirm their year 2000 readiness. To date, 70 percent have not responded to the survey. In addition, the Minnesota Department of Public Service surveyed 317 electric, natural gas, telecommunications, and pipeline utilities doing business in Minnesota. 50 percent of the respondents said they did not have a year 2000 project team in place to examine the effect year 2000 will have on their company.

The Department of Public Service anticipates there could be isolated power outages outside of the Minneapolis/St. Paul metropolitan area. The larger power-generating plants have more built-in redundancy and tend to be owned by larger companies with more resource to resolve year 2000 issues. Smaller, city-owned utilities do not have the resources to identify and address year 2000 issues. To date, it has not been determined if there are problems with the substations located in smaller communities.

The Minnesota trucking industry's year 2000 readiness is also unclear. The Minnesota Trucking Association is beginning to become aware of the need to inventory and assess its routing and dispatching systems for year 2000 issues.

A third area of concern is the year 2000 readiness of railroads. Coordination between power companies, traffic signal controllers, and railroad grade crossing signals is essential for safe transportation of both trains and the motoring public. In February 1998, Mn/DOT communicated with 22 railroads to determine the status of their year 2000 effort. To date, Mn/DOT has received three responses. At this time, Mn/DOT is not sure of the direction the Federal Railroad Administration has given the railroads to begin testing equipment for year 2000 readiness.

The fourth area of concern is the year 2000 progress of the U.S. Department of Transportation, particularly the Federal Highway Administration. Mn/DOT depends on systems within the FHWA for funding and approval of projects.

Finally, Mn/DOT is greatly concerned as to the progress of cities and counties. In August, 1998, Governor Carlson sent out an urgency letter and year 2000 readiness survey to over 9,000 officials of school districts, townships, cities, and counties. To date, 30 percent have responded to the survey. The majority of the respondents are aware of year 2000 issues. Over half of the counties that responded have year 2000 project teams in place, but few cities or counties have project plans. Because of the liability issues associated with the year 2000, Mn/DOT continually is being challenged to ensure that products and services that purchases are year 2000 compliant while maintaining quality vendors.

Mn/DOT is finding, as time progresses, that the year 2000 issue is filled with complexities and interdependencies. To ensure that we have addressed all of our issues and to help our business partners address theirs in a timely manner, it is essential that organizations are able to share test results and technical fixes. Passing of the Good Samaritan Act will facilitate that sharing. A Federal clearinghouse for this information would also help organizations to expedite their search for this information.

I have included in the more detailed report that I have given you Mn/DOT's status of its transportation infrastructure as far as intelligent information systems are concerned. Thank you.

Mr. PETRI. Thank you.

Our final panelist is Mr. Gordon Aoyagi, who is the chair of the Emergency Management Group, Montgomery County Government. And he's accompanied by Don Evans, Research Information Systems. Sir.

Mr. AOYAGI. Good afternoon, Mr. Chairman. We certainly want to thank this committee and certainly our congresswoman, Connie Morella, for the community as well as congressional leadership in dealing with the year 2000 issue: Will we get there on time?

The year 2000 issue is not just a technology problem. It is a business management problem of enormous proportions that must be addressed at the highest levels. It competes for precious resources and threatens the delivery of local government services.

Local government is a direct provider of services. It has three times more employees and its information technology is two times larger than the Federal Government. Imagine that IT systems at Federal installations are fully functional in the year 2000, but if the Federal employees cannot get there from here or when they get there they had no basic services, we will have failed in our mission. Clearly, a Federal and local government partnership is required.

Montgomery County, Maryland, has a population of about 840,000 and an annual operating budget of about $2 billion. We are one of three counties with a AAA bond rating from all three rating agencies, who have indicated that our Y2K program is a model for other local governments. Much of this approach is contained in the Year 2000 Best Practices manual that is currently being distributed by our Council Of Government. The county has a total of about 204 systems, with 43 percent well on their way towards remediation; 25 percent are complete or are awaiting certification. We've appropriated about $35 million to date and examples of our Y2K program management approach is contained in our testimony.

Our program has four phases: system compliance, business continuity, contingency planning, and community awareness and outreach. We expect to complete most of our system compliance by December of 1998 and plan to use 1999 for testing and contingency planning. Because of the uncertainties related to embedded chips and institutional electronic interrelatedness, emergency management planning is being initiated. The county will conduct an emergency management exercise in December, 1998 to test our readiness as well as our ability to respond to disruptions or failures of critical systems.

The Metropolitan Washington Council of Governments will then test their regional readiness later in the spring of 1999. We hope that the lessons learned will be useful to other local governments in the Nation.

This background provides context to our Y2K transportation and infrastructure in the county. Our county has 3,100 center-line miles of State, local, and interstate road. Our transportation service is provided by Ride-On, Metrorail, Metrobus, and the Maryland MARC commuter rail. Other transportation services are provided by regional and private entities. The county also operates a regional airport and utilizes about 430 buildings. Water and sewer involves about 5,000 miles of water and sewer lines. There are also 19 Federal regulatory agencies located in the county.

Our transportation and infrastructure are interrelated and complex. Our county has an integrated, highly automated transportation management system with real-time traffic and transit information provided to the public via the Internet and cable TV. We expect that the county's transportation infrastructure will be year 2000 ready. Our 60 traffic cameras, our 790 traffic devices, our control systems, and our automated transportation management center have all been inspected and are currently being remediated. Electronic fueling, fleet management, and inventory are also being remediated.

Having done this much in Y2K, we're very concerned about embedded systems and that represents a real strain on local government. Local governments may not be able to provide additional Y2K funding for local transit systems because of the press for our own local resources.

We have recommended four Federal key roles in our testimony. We applaud the recent passage of the Y2K immunizing legislation to get better information on business continuity. Included in our proposal was a request to provide $7 million immediately to the National Capitol Planning Region, of which $5 million is for WMATA's Y2K funding gap. Another $1.5 billion is for a FEMA-like seed funding for local governments to develop their own Y2K contingency plans.

The extent of Y2K is still unknown. Many local governments are faced with scarce resources. Federal, State, and local government leadership are essential. Thank you for your attention.

Mr. PETRI. Thank you, sir. Mr. Rahall.

Mr. RAHALL. Thank you, Mr. Chairman. I understand we have another maiden voyage to this subcommittee this morning in Gloria Jeff's first testimony before us. In looking at her bio, I notice that she certainly comes to the Federal Highway Administration with an excellent background in research and resources and information. It has helped improve the quality of our national highway system in this country and our intermodal connectors.

Mr. PETRI. She's a regular, though, in this hearing room. This is not her first appearance.

Mr. RAHALL. Yes. Yes. That's true. Yes. I have noticed her presence here quite a few times.

Mr. PETRI. She was helping Mr. Slater a number of times.

Mr. RAHALL. Yes. And that she's been most effective in negotiations between FHWA, FTA, and the South African Department of Transportation. She has also been most instrumental in developing President Clinton's welfare-to-work initiatives that was part of NEXTEA. So I do commend her and say that Secretary Slater and as well as current Administrator Kenneth Wykle have an excellent person to back him up. Welcome.

Ms. JEFF. Thank you, Representative Rahall.

Mr. RAHALL. Thank you, Gloria. Thank you, Mr. Chairman.

Mr. PETRI. I have a--maybe Mr. Aoyagi, because you did point out in your testimony that State and local government has twice the scale of the Federal Government in the United States and is much more fragmented and, therefore, could be a--while it might not destroy things across the United States the way it might if it were a systemic problem that's not addressed, could make things pretty miserable in a particular county or community if things go wrong. And you seem as though, in your testimony, you're pretty far along in working through the basics of your system; hope to done by December of this year and then spend next year doing contingency planning and figuring out how to adapt.

If, outside your system, have problems, could you describe at all--or Mr. Evans who is accompanying you--sort of how you are going about checking out your system and if you did find things that needed correcting and what would have happened had you not corrected them? Just give--bring to life a little bit about what it is we're talking about.

Mr. AOYAGI. Certainly. And thank you for that opportunity. Our approach was to be a multi-agency approach in Montgomery County. And that was to have all seven of our semi-independent local agencies coordinate all their Y2K efforts. So you can imagine, as we looked at public education systems versus a 911 system, how does one triage that.

But, through the efforts of Mr. Evans and his office, a format was developed that quantified various mission-imperative versus mission-essential and other medium-risk systems. As we triaged that, then we allocated annual appropriations for the remediation of that effort.

What would have happened--well, what did we find? In many cases, we found a code to be--certainly the double-digit, as opposed to the four-digit. And had that system continued we would have been in a continuous loop and not been able to perform a critical function. We are finding, for example, in our E-911 system, very complex interrelationships with other municipalities in terms of reciprocal agreements and services related to electronic communication devices. In the simple thing of health care, we found that some of our life pack systems, which are carried by our emergency medical technicians, that the embedded chip needed to be upgraded to ensure that defibrillation equipment is available.

So it ran the full gamut of potential failures. And we're fortunate that we had the foresight and the commitment of our political leadership to provide the money to address it.

Mr. PETRI. So you're indicating that, had you done nothing and then someone, for example, had a emergency medical problem, and the crew might have shown up and the equipment wouldn't have worked and that person could have died as a result.

Mr. AOYAGI. We believe so, that there would have been a failure because of the embedded chip and in the case of a life pack, very critical piece of medical equipment, we would not have been able to fully respond in a timely manner and thus place that person in jeopardy.

Mr. PETRI. Has Minnesota made plans--you regulate or interact with, hopefully--maybe regulate is a little too strong--but do a lot of business with the trucking and the rail industry. Are you dependent in sort of regulating on their being in compliance? That is to say, you have weight--you check all things about trucks and look at their records. If they're not--if somehow their equipment doesn't work right, what will happen? I mean, will they be in violation in Minnesota when they're pulled over in a--don't you check? I mean, they have recorders on trucks to make sure that drivers not--

Ms. HOFTSTEDT Overweight or overdimensional.

Mr. PETRI. Yes. Yes. So now comes 2000 and you are all in compliance and you're pulling people over to just check out their records and it's all a mess in many cases. So what will you do? Will you cite them? Or, say, well, come back; we'll let you go right now? Or haven't you thought about that?

Ms. HOFTSTEDT. I think where we would come in there is we do regulate them as far as overweight and overdimensional. What is imperative is that our scales are accurate to ensure that we are weighing them correctly. We do provide them with permits for being overweight or overdimensional. But as far as their records, most of their records are maintained in a log by hand, so there wouldn't--that's how we would check what they've done.

Where their problem comes in is their routing and their dispatching systems internally within their own company. So that's why we're working with the trucking industry to try and bring some kind of awareness there so that they will look at their own internal systems so that when year 2000 comes along, they will not have a problem with routing and dispatching trucks throughout Minnesota and throughout the country.

Mr. PETRI. Thank you. Thank you all very much for coming here and helping to draw attention of the public and transportation, pipeline sectors, other sectors to the scope of this problem. And, with that, this hearing is adjourned.

[Whereupon, at 12:43 p.m., the subcommittee adjourned subject to the call of the Chair.]

TESTIMONY TO
U. S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

Review Transportation & Infrastructure Issues
Related to the Year 2000 Computer Problem
"Y2K: Will We Get There On Time?"

OCTOBER 6, 1998

Gordon Aoyagi
Chair, Interagency Policy Coordinating Subcommittee for Y2K
Chair, Emergency Management Group
Montgomery County, Maryland

Good morning, Chairman Bud Shuster and members of the committee, I am Gordon Aoyagi, Fire Administrator for the Montgomery County Fire and Rescue Service, representing Montgomery County, Maryland as the Chair of the Interagency Technology Policy Coordinating Subcommittee for Year 2000 and Chair of the County's Emergency Management Group. With me is Donald Evans, Year 2000 Program Executive for Montgomery County and Chair of the Metropolitan Washington Council of Governments Information Technology (CIO) Committee which has the responsibility for coordinating the regional Year 2000 readiness. We are pleased to be a part of the hearing today to discuss the potential impacts of the Year 2000 and our progress in remediating and minimizing such impacts upon the transportation and infrastructure of Montgomery County.

Montgomery County, Maryland has a population of approximately 840,000 citizens and an annual operating budget of over $2 billion which ranks it sixth among the nation's counties. Montgomery County is one of three counties that has an AAA bond rating from all three rating agencies. The County is highly invested in, and dependent on, technology to achieve its mission throughout its government services and in particular, its transportation management systems. Earlier this year the County was honored to accept the 1998 NACo Annual Achievement Award for its Year 2000 program.

We in Montgomery County consider the coming of the Year 2000 as a very serious and significant problem. This so-called Year 2000 or "Y2K" glitch occurs when computers may fail or are unable to recognize the '00" as the Year 2000. It is more than just a technology problem; it constitutes a business management problem of enormous proportions competing for precious resources. If not fixed, this problem threatens public safety, emergency response, health and human services, finance, taxation, record keeping, transportation and even the operation of traffic lights. In combination, problems in these areas could lead to disastrous law and order conditions, stoppage of critical services, loss of revenue, and enormous potential litigation costs.

In 1995-96 Montgomery County formulated a plan to resolve its Y2K problem by December 31, 1998, leaving the calendar year 1999 reserved for testing and contingency planning. This included the establishment of a Y2K Project Office for participative management, communications and coordination among seven independent and otherwise autonomous local agencies. The multi-agency enterprise for Y2K includes general government, public schools, community college, parks and planning, water and sewer, revenue authority and housing authority. The County' Year 2000 Compliance Program Timeline is shown in **Display #1**. The County's Year 2000 Decision Structure, involving the coordination of the seven agencies in their Y2K programs is shown in **Display #2**. We have been working diligently to manage the effects of the Y2K problem on the County and its citizens. In the process, we have gained significant experience and knowledge which we have shared with other local jurisdictions under the auspices of the Metropolitan Washington Council of Governments (COG). This information is contained in Year 2000 Best Practices

Manuals, which is available by mail order from the Metropolitan Washington Council of Governments in **Display #3.**

After almost two years of intense efforts, signficant progress has been made but there is still much to do. Our approach to Y2K is unique in that it involves seven different County agencies. Through a comprehensive multi-agency, multi-phase, multi-platform effort, the County has identified 204 systems in its seven agencies. Many are completing assessment; many are in progress for being remediated through repair or replacement. Thirty six (36) have been completed and have been tested and certified to be ready to operate properly in the new millennium. In determining the eligibility of projects for Y2k remediation, proposed projects were subjected to a rigorous priority evaluation and triage process. The highest priorities were for mission imperative, such as public safety and health, then mission critical , such as those mandated by law, etc. The triage and priority scoring process is show in **Display #4.** The status of these projects are monitored bi-weekly by the County's Chief Administrative Office and certain key Department Heads. The Systems Status Summary Report (shown in **Display #5)** indicates about 32 % in assessment; 43% in remediation, and testing; and 25% awaiting certification or complete. This high level management review of the Y2K Project Scorecard (shown in **Display #6)** is used to monitor progress and to address impediments so that issues can be resolved in a timely way. The County has appropriated approximately $35 million to date, allocated significant staff resources, and passed special legislation to adopt fast track administrative processes in areas such as procurement and budget. The appropriations summary is shown in **Display #7.**

The structure and processes involved in our Y2K program was necessary to provide background on the comprehensiveness of our efforts and to also put Y2K issues involved in transportation and infrastructure in context. Our County transportation system involves about 2400 center-line miles of County road and about 790 traffic signal devices. The State of Maryland has approximately 700 center-line miles of State and Interstate Highways in Montgomery County. The County's transportation systems involves transportation engineering, highway maintenance and operations, traffic engineering and parking, and the County's public transit system, Ride On. In addition, the Washington Metropolitan Area Transit Authority (WMATA) operates about 20 miles of track and 13 stations and about 250 Metrobuses in the County. Maryland Mass Transit Administration operates the MARC commuter rail along 31.5 miles of the CSX rail line from Union Station to Harpers Ferry, West Virginia. The Paratransit system for the ADA compliance is coordinated and dispatched by WMATA. The carpool matching for the County's ridesharing program is coordinated through the COG's Ridefinders system. There are also about 560 taxicabs operating in the County.

With regard to infrastructure, the County agencies utilize about 430 buildings for public services and education. Water and sewer is provided by the bi-County Washington Suburban Sanitary Commission with about 5000 miles of water lines and an equal amount of sewer lines in the bi-County area. A significant amount of the bi-Counties' wastewater is treated at the Blue Plains facility under the Inter-Municipal Agreement of 1985. Two municipalities in the County provide water services directly to their citizens. Storm water management is also a part of the infrastructure with over 3500 retention ponds, separators and other facilities located in the County. Electricity service to the County residents is provided by three energy companies. Natural gas service is provided by two companies. There are also high pressure natural gas line operating through the County by Transco and Columbia Gas. Solid waste infrastructure includes a County operated Resource Recovery facility with incinerator and a transfer facility with rail haul connection.

As noted, the transportation and infrastructure systems are interrelated and involve complex institutional relationships. The County must rely upon WMATA, the State of Maryland, WSSC, MWCOG and private companies to insure that their transportation systems are Y2K compliant and that there will be no interruption in service or in the electronic transfer of information between the County and the other entity, if such connections exist today. We are advised that WSSC has completed its Y2K remediation and is complaint for its major systems. We are advised that WMATA is facing a funding shortfall of about $5 million for its Y2K remediation program. Communications and coordination with all the other public agencies and the major utilities have been initiated and are on-going with regard to Y2K readiness and the need for contingency planning.

The County's transportation system is an integrated system involving real time traffic and transit information to the public via internet and cable TV. Recently the County initiated the use of automated vehicle locators (AVL) on its Ride On bus fleet utilizing Global Positioning Satellites (GPS) to provide real time bus location and schedule adherence information for key bus stops. The use of AVL allows the Ride On bus system to be coordinated with traffic signals by providing traffic signalization priority for Ride On buses that may be running behind schedule.

All the major systems in the County's transportation infrastructure are included in the County's Y2K-list of 204 systems. Our signal lights are a "moment-by-moment" system which was assessed and determined not vulnerable to Y2K failures. The COMTRAC control system which manages timing, phasing and sequencing of traffic lights has been remediated. The integration of systems at the Automated Transportation Management Center involving over 60 traffic cameras, coordination and phasing of control devices and transit command and control system have also been upgraded to be Y2K compliant. In addition, the electronic fueling system, fleet management and inventory systems, and climate control systems for facility HVAC are being assessed or remediated. Solid waste process control systems for the Resource Recovery system are also being remediated. Our schedule is to complete the remediation on all systems by December 1998 so that 1999 may be used for testing and contingency planning.

All this is necessary in order to ensure that critical services will be available to our citizens in the coming months. Having done this much in our transportation and other infrastructure systems as well as in public safety, health, finance and other systems– and finding more to do everyday such as embedded systems which are much more difficult to identify and assess – I admit that this is a real strain on the $2 billion enterprise that is Montgomery County, Maryland. But certainly any one municipality alone cannot assure the success of a region or the nation. There are many municipalities throughout the County that have not yet begun their Year 2000 preparations. This is a matter of grave concern and poses a major problem for the entire nation.

Montgomery County's Y2K Program involves four concurrent and interrelated phases - systems compliance and certification; business continuity assurance; contingency planning and community outreach. The community outreach program was most recently initiated when the County hosted all the County's municipal governments for a Y2K session. A meeting of the Chambers of Commerce is planned next. The County has also extended it previously strong regional role in emergency preparedness to Y2K. The County's Emergency Management Group (EMG) is expected to conduct a Y2K disaster exercise sometime in early December.

While the national media has done a good job in highlighting the challenge of remediating 7,343 critical Federal systems, the local challenge of addressing Year 2000 is less well known. With local governments responsible for providing so many direct services to the nation's citizens any failure of county services will hit much closer to home for each of us.

As you may know, local government, in total, is larger and more dependent on information technology than Federal government. There are many more local government entities; these include municipalities, townships, school districts, and other jurisdictions, and total 87,259. Federal government employment totals 4.2 million, while local government employment stands at 12 million. Likewise information technology spending for the Federal government in 1997 was $28.6 billion compared to state and local government IT spending of $41.9 billion. Clearly, while the Federal challenge for the Year 2000 is sizeable; the local Year 2000 challenge is even greater.

How are we in the Washington region governments attempting to deal with Y2K related issues beyond our jurisdictional boundaries? The COG is providing regional leadership and coordination. COG's 17 member jurisdictions have identified the following six critical interlocking functions that must be assessed in order to codify region-wide contingency planning assumptions for Y2K preparedness: Utilities, Public Safety, Public Health, Transportation, Business/Commerce, and Communications. Through a division of labor, member jurisdictions are expected to complete an assessment of their assigned areas by January 1999. Utilizing the auspices of the COG will improve the quality of the information provided by those surveyed, assure information confidentiality and improve the economy of effort through coordination. In many respects the COG and Montgomery County Y2K programs may potentially serve as models for the nation.

Problem solutions are normally preceded by a period of awareness, knowledge-transfer, discussion, and dialog. But that discussion and dialog must do more than just "admire the problem". We believe that four key elements, supported by Congress, could significantly enhance the Nation's understanding of, and attack on, Y2K. These are:

1. Establishment of a FEMA-like National Y2K Emergency Fund to help finance local governments' Y2K remediation and contingency planning efforts. The attached proposal in **Display #8** recommends that Congress immediately appropriate $7.3 million to facilitate the efforts of the National Capital Region. If this region is not ready, the ability of Federal Government to function will be seriously impacted. The proposed Y2K fund will finance Y2K initiatives in each of the six functions identified by COG as listed above. This includes $5 million required immediately for the regional transportation infrastructure managed by WMATA and efforts to extend Montgomery County's Y2K disaster preparedness model to the National Capital Region.

   Another $1.5 billion should be appropriated as seed funding for the other local governments to apply the best practices developed by the National Capital Region. The NACo through its Public Technologies, Inc. (PTI) relationship would serve as the vehicle for providing programmatic assistance to the nations 3,069 counties. At the same time NACo would assist the federal government by proposing application and eligibility rules for the Y2K fund.

2. Establishment of a National Y2K Program Office to complement the efforts of the President's Y2K Advisory Council. The focus of this office will serve to aggregate and disseminate information to local governments. It will also be key in providing national coordination to all regions while they plan for Y2K; it will also provide status reports on Federal efforts to mitigate Y2K risk to regional and local systems.

3. Formation of a National Y2K Help Desk available to all local municipalities for best practices and compliance information from nationally maintained databases and assistance regarding Y2K contingency planning.

4. Affirmation of continued Congressional leadership to highlight Y2K local government issues and solutions.

Other actions which Congress could take may include:

- Organizing and executing at least one National Y2K Day, where normal business is set aside as much as possible and Y2K solutions are tested, documented, and reported for the common good before January 1, 2000.
- Instituting a National Y2K Internet Web Site devoted to the responsible discussion of local Y2K issues and solutions thereby encouraging inter-governmental information exchange.

- Producing and promoting a series of professional, compelling, high-quality TV documentaries about local Y2K issues and solutions and their impact on local government services. This will supplement the work already done by NACo, ICMA, NLC and PTI in their program titled "Y2K and You". This would also supplement the proposed National teleconference seminar scheduled to air on October 7, 1998, to 47 local sites.
- Disseminating tool kits or "How To" manuals such as those published by the COG which help local government officials identify the steps they need to take to address Y2K issues.

Looking at just one of the recommendations, a National Year 2000 Program Office, to complement the efforts of the President's Y2K Advisory Council, the Federal government can provide local government with much needed Y2K data aggregation and coordination. A large amount of data is being generated, but local governments need help in accumulating, analyzing, and understanding this data. As an example, using the information gathered for the 34 functional categories currently monitored by the Y2K Advisory Council, a National Year 2000 Program Office could assist each region in ascertaining the readiness of area hospitals. Providers of critical emergency medical equipment are known to be lagging in the Y2K race. This information is essential in operating our local emergency medical systems. It can assist in projecting the necessity of the efforts of the national guard to assist state and local law enforcement agencies; and provide input to a national 'disaster' exercise on Y2K much like the one Montgomery County has planned for December of this year. The most critical functions are the performance of the electric utilities and health care systems and providing information on risk assessment to local governments. An office of this nature would be instrumental in promoting dialog among the 87,259 jurisdictions in the nation.

To ensure a community's economic stability through this difficult period, each local community needs a Y2K business continuity program to assure that business partners, suppliers, contractors, and vendors will still be in business after 12/31/1999. Montgomery County has such a program and is sharing much of its information with regional governmental bodies and business entities but remains concerned about potential litigation should reliance be placed upon its disclosures. The immunizing legislation goes a long way toward allowing those who have accumulated regional supplier information to share that knowledge without fear of retribution. We applaud Congress for passage of the immunizing legislation.

Montgomery County recognizes its obligation to the community, not only as the local governmental entity having the duty to inform and protect the citizens and businesses within its immediate boundaries, but also as a partner in a larger regional community. Y2K failure in any County's power, transportation, health care, or communications infrastructure will have tremendous rippling effects on all neighboring communities.

A county has the obligation to repair and test all critical systems and processes to ensure that it can continue to deliver services and that local businesses can continue to operate unimpaired. Montgomery County is committed to undertaking special efforts to minimize the risk of failure to its community but, at the same time, to plan for the most likely regional failures. This means government should prepare to be the direct provider of services in the event the business community is disabled, such as in the distribution of food or water, should the local supermarket be closed or overrun. Contracted service providers must be on standby. A community contingency plan is as important as those we are developing for our automated systems.

The potential effect of Y2K on county governments nationally requires the redirection of resources and manpower to ensure the health and safety of citizens, to maintain law and order, to initiate action plans for the restoration of business-as-usual, while minimizing negative impacts. Planning contingencies are essential in the event of power outages, failure in water and sewer systems, traffic controls, and telecommunications to note a few. Community health, safety, and welfare are County governments' highest priority, and potential Y2K impacts in this area must be identified and mitigated in short order.

The nationwide extent of Y2K failure is still unknown. But whatever it is, it will affect everyone at the same time and some earlier. The Y2K deadline is immovable. No silver bullet solution will be found. As I stated earlier, while many of the Nation's local governments are engaged in Y2K assessment and repair, many are very late in starting. For many counties, local resources are scarce and funding is critical to the success of Y2K repair efforts. This may prove to be one of our biggest obstacles. Awareness must be increased and every community must plan now, because we are running out of runway.

Lessons learned by Montgomery County lead us to offer the following advice to those who are just starting:

1. View Y2K as a business management problem, not a technical problem.
2. Insist on the highest level of executive leadership.
3. Make someone in your organization responsible for Y2K.
4. Consider suspending or postponing new, non-Y2K initiatives.
5. Make funding available; divert funds from current programs where possible; plan for uncertain buys.
6. Perform a full inventory, triage and prioritize.
7. Engender a sense of urgency; streamline procurement and budget processes.
8. Where possible, don't reinvent the wheel; adopt industry best practices such as those of the Metropolitan Washington COG.

Thank you, Chairman Shuster and other members of the Committee, for your time and attention. I will be happy to answer any questions.

List of Displays

TESTIMONY TO

HOUSE COMMITTEE ON TRANSPORATION AND INFRASTRUCTURE

October 6, 1998

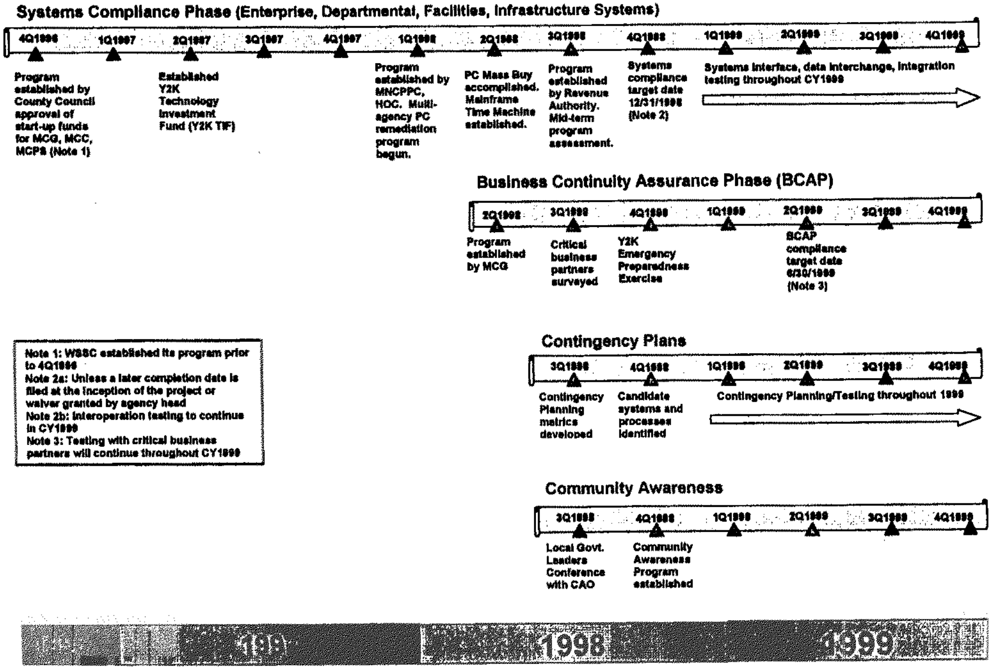
GORDON AOYAGI

Montgomery County, Maryland

1. Montgomery County's Y2K Compliance Program Timeline
2. Montgomery County's Y2K Decision Structure
3. Metropolitan Washington Council of Governments – Year 2000 "Best Practices Manual" – Mail Order Form
4. Examples of Montgomery County Projects by Categories
5. Montgomery County's Y2K Systems Status Summary
6. Montgomery County's Y2K Scorecard Report
7. Montgomery County's Y2K Appropriations Summary
8. Recommended Cost Proposal for National Capital Region and for Nationwide Local Governments

Display #1

MONTGOMERY COUNTY TIMELINE FOR YEAR 2000 COMPLIANCE
(All Dates Are Calendar Years)



Systems Compliance Phase (Enterprise, Departmental, Facilities, Infrastructure Systems)

- 4Q1996: Program established by County Council approval of start-up funds for MCG, MCC, MCPS (Note 1)
- 2Q1997: Established Y2K Technology Investment Fund (Y2K TIF)
- 1Q1998: Program established by MNCPPC, HOC. Multi-agency PC remediation program begun.
- 2Q1998: PC Mass Buy accomplished. Mainframe Time Machine established.
- 3Q1998: Program established by Revenue Authority. Mid-term program assessment.
- 4Q1998: Systems compliance target date 12/31/1998 (Note 2)
- 1Q1999–4Q1999: Systems interface, data interchange, integration testing throughout CY1999

Business Continuity Assurance Phase (BCAP)

- 2Q1998: Program established by MCG
- 3Q1998: Critical business partners surveyed
- 4Q1998: Y2K Emergency Preparedness Exercise
- 2Q1999: BCAP compliance target date 6/30/1999 (Note 3)

Contingency Plans

- 3Q1998: Contingency Planning metrics developed
- 4Q1998: Candidate systems and processes identified
- 1Q1999–4Q1999: Contingency Planning/Testing throughout 1999

Community Awareness

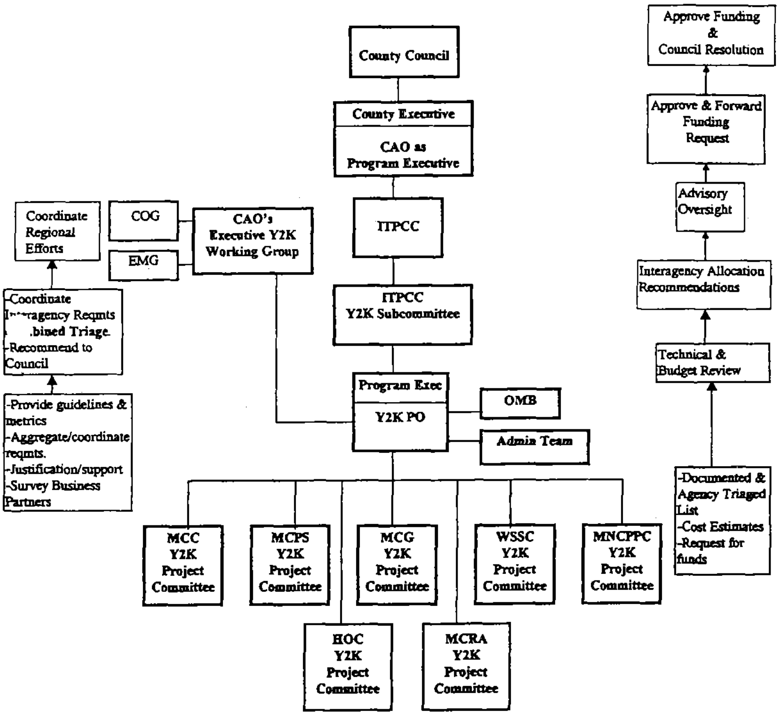
- 3Q1998: Local Govt. Leaders Conference with CAO
- 4Q1998: Community Awareness Program established

Note 1: WSSC established its program prior to 4Q1996
Note 2a: Unless a later completion date is filed at the inception of the project or waiver granted by agency head
Note 2b: Interoperation testing to continue in CY1999
Note 3: Testing with critical business partners will continue throughout CY1999

Y2KPO 9/27/1998 6:00 PM

Display #2

MONTGOMERY COUNTY, MARYLAND
YEAR 2000 DECISION STRUCTURE


County Council
County Executive
CAO as Program Executive
ITPCC
ITPCC Y2K Subcommittee
Program Exec
Y2K PO
OMB
Admin Team
CAO's Executive Y2K Working Group
COG
EMG
Coordinate Regional Efforts
-Coordinate Interagency Reqmts Combined Triage
-Recommend to Council
-Provide guidelines & metrics
-Aggregate/coordinate reqmts.
-Justification/support
-Survey Business Partners
MCC Y2K Project Committee
MCPS Y2K Project Committee
MCG Y2K Project Committee
WSSC Y2K Project Committee
MNCPPC Y2K Project Committee
HOC Y2K Project Committee
MCRA Y2K Project Committee
Approve Funding & Council Resolution
Approve & Forward Funding Request
Advisory Oversight
Interagency Allocation Recommendations
Technical & Budget Review
-Documented & Agency Triaged List
-Cost Estimates
-Request for funds

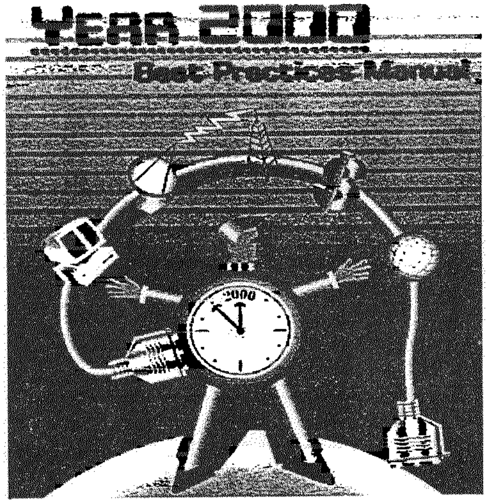
DISPLAY #3

ETROPOLITAN
WASHINGTON
COUNCIL OF
OVERNMENTS

PUBLICATIONS

"WE'RE IN A RACE TO A DEADLINE...WE HAVE A LOT OF WORK LEFT TO DO."

------John Koskinen,
President's Council on Year 2000 Conversion



ARE YOU READY???

COG's new ***Year 2000 Best Practices Manual*** can help.

It's a "how to" guide that has been tailored for local governments to aid them in dealing with Year 2000 (Y2K) computer-related problems.

→

COG's **Year 2000 Best Practices Manual** includes:

- ✓ Solutions
- ✓ Strategies
- ✓ 300-page appendix
- ✓ Templates
- ✓ Forms

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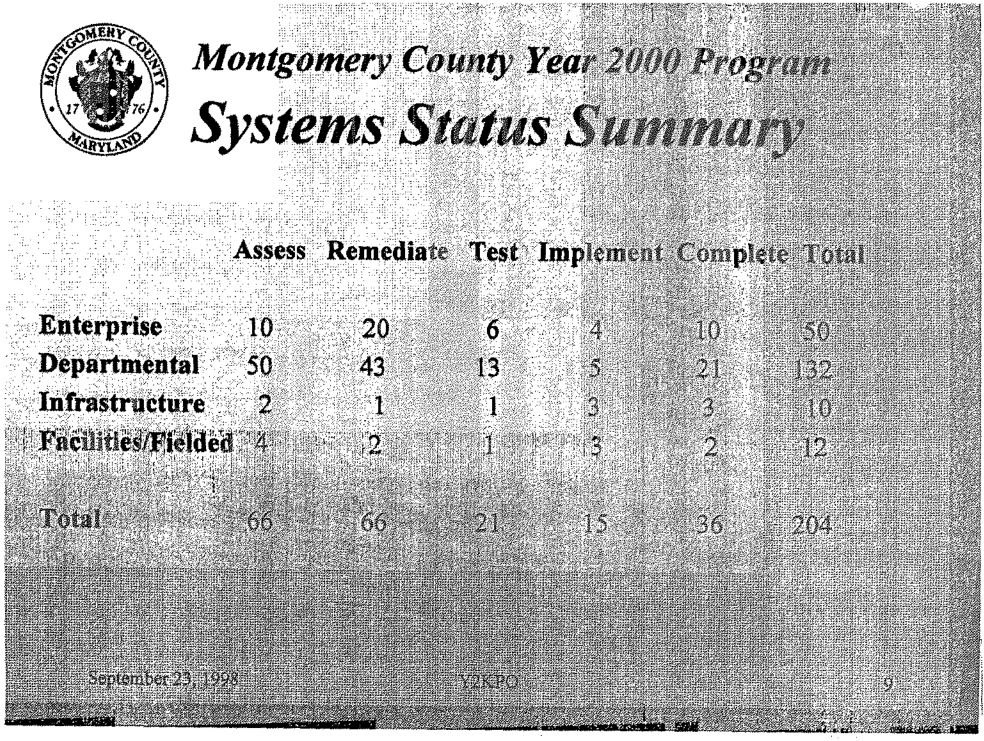
DISPLAY # 4

TABLE A: EXAMPLES OF MONTGOMERY COUNTY PROJECTS BY CATEGORIES

Y2K RISK RATING SCORE	CATEGORY	MONTGOMERY COUNTY EXAMPLES
45 points or greater	Highest-risk, mission-imperative	1) E-911 CAD Emergency Dispatch 2) Advanced Traffic Mgmt. System 3) Community College Academic Computing 4) Public Schools Student Info System
35 – 44 points	High-risk, mission-critical	1) Permits 2) Animal Control 3) Operating Budget/Capital Improve Process 4) PA/Bell/Fire Alarms
20 – 34 points	Medium risk, mission-essential	1) Security Systems 2) Inventory Control 3) Fuel Tracking
under 20 points	Lowest risk, mission-enabling	1) Road Inventory 2) Elevators 3) Air Quality

Display #5



Montgomery County Year 2000 Program

Systems Status Summary

	Assess	Remediate	Test	Implement	Complete	Total
Enterprise	10	20	6	4	10	50
Departmental	50	43	13	5	21	132
Infrastructure	2	1	1	3	3	10
Facilities/Fielded	4	2	1	3	2	12
Total	66	66	21	15	36	204

September 23, 1998 Y2KPO 9

MONTGOMERY COUNTY GOVERNMENT

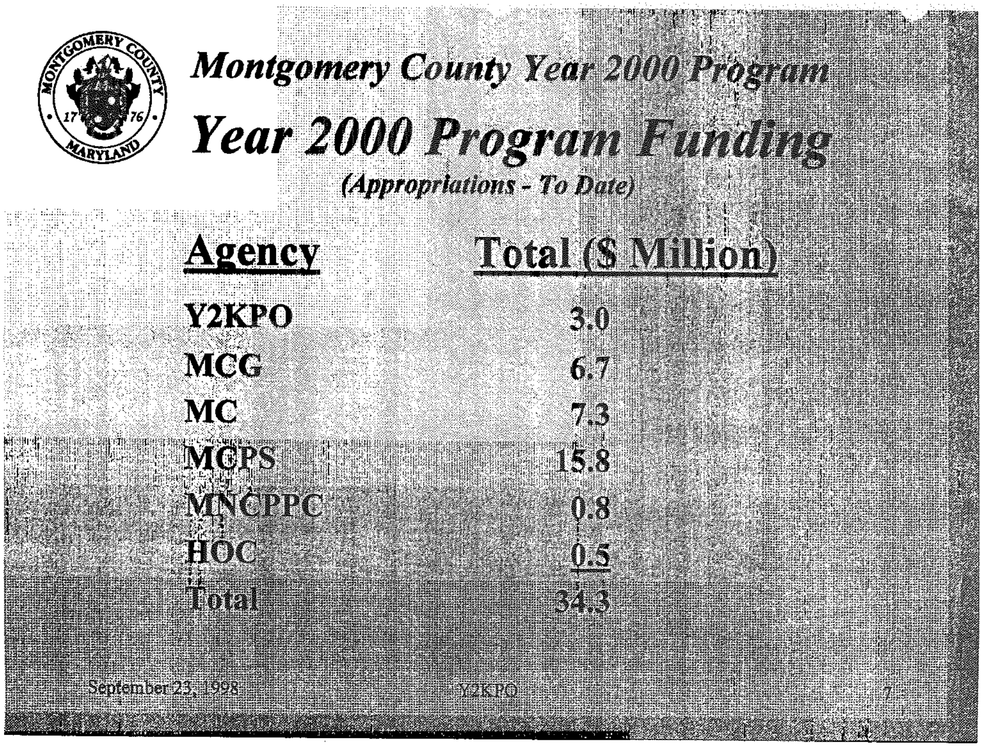
Status of Year 2000 Projects (with Report Validity Assessment)

Item # / Rank	System ID / Risk Rating	System Name	Project Status: Phase (Assess, Remediate, Test, Implement)	Y=Minor Issues / R=Major Issues	Percent Complete Last / Current	Report Validity Assessment: Two Months Ago	One Month Ago	Current Month	Remarks
1 / 1	MCGE-0010a / 63	CAD	Remediate	Y	20% / 30%	5	5	5	Y2K test plan being developed.
2 / 2	MCGE-0010a / 62	E-911 ALERT SYSTEM	Remediate	Y	20% / 20%	5	4	4	Contractor test plan delayed to 9/18/1998.
3 / 2	MCGI-0006 / 63	EMERGENCY COMM CENTER	Implement	Y	80% / 90%	4	4	4	New PC delivered. Some new HW & SW still necessary. Completion date moved to 9/30/1998.
4 / 2	MCGO-0003 / 55	INDEPENDENT REVIEW & RISK ASSESSMENT	Assess	Y	9% / 9%	6	6	6	Contract negotiations aborted with vendor awardee due to differences in T & Cs. Negotiating with next rated vendor.
5 / 2	MCGO-0004 / 63	CONTINGENCY/BUSINESS CONTINUITY PLANNING	Assess	■	0% / 5%	0	0	0	New project established 9/1/1998
6 / 2	MCGO-0005 / 65	INTERAGENCY Y2K EMERGENCY FUND	Assess	■	0% / 0%	0	0	6	TIF request submitted.
7 / 3	MCGE-0010b / 50	E-911 FALSE ALARMS	Remediate	■	27% / 27%	0	0	0	Servers & replacement PC hardware/software installed. Testing Kofax imaging cards. CACI test plan (timeline) submitted.
8 / 3	MCGE-0024 / 49	TAX ASSESSMENT	Complete	■	95% / 100%	0	0	0	DIST-MANAGED. Completed.
9 / 3	MCGE-0030a / 49	TAX RECEIVABLES-REPLACE	Remediate	Y	15% / 18%	0	0	0	DIST-MANAGED. 1st status meeting held. Tax Receivables system demo'd. Task Order RFP for project manager issued.
10 / 3	MCGE-0030b / 49	TAX RECEIVABLES-REPAIR	Assess	Y	3% / 5%	0	7	7	DIST-MANAGED. Contingency to MCGE-0030a. Contractor kick-off meeting held. Acceleration planned. Completion target date 12/31/98.
11 / 4	MCGD-0011 / 58	ATMS/COMTRAC	Implement	Y	50% / 86%	4	4	0	Contractor's report received, system certified. Integration in progress.
12 / 4	MCGD-0060 / 46	GENERAL PC REMEDIATION	Remediate	Y	25% / 27%	0	5	5	Cure letter sent to vendor. Diverting PCs from other programs.
13 / 4	MCGE-0032 / 47	3270 EMULATOR FOR WINDOWS	Assess	Y	3% / 10%	4	5	5	Testing done with compliant version of MEMO/Windows on September 3, 1998. Could not prove non-compliant.

Y2K PO 9/22/1998 8:29:03 PM NOTE: Some projects required to be held at 98% complete pending full integration (interface) testing.

Display #6

DISPLAY #7



Montgomery County Year 2000 Program

Year 2000 Program Funding

(Appropriations - To Date)

Agency	Total ($ Million)
Y2KPO	3.0
MCG	6.7
MC	7.3
MCPS	15.8
MNCPPC	0.8
HOC	0.5
Total	34.3

September 23, 1998 Y2KPO 7

DISPLAY #8

YEAR 2000 FUNDING PROPOSAL

Note: Year 2000 is a $300B problem

Experience from the Montgomery County Government's Year 2000 program offers the following considerations for funding to assist local governments. The proposal is in two parts:

I. National Capital Area

1. Pilot an Emergency Contingency Plan $500K
   MCG will use its Y2K apparatus and EMG structure to rapidly build a generic Y2K EMG contingency guide for local governments.
2. Six critical functions 6x$300K each area = $1.8M
   Transportation, Communications, Utilities, Health, Public Safety, Business
   Notes:
   a. All must be done in parallel; no economies of scale.
   b. Our analysis indicates that every regional community of local governments will require Y2K readiness for these functions.
   c. Items (1) & (2) are then exportable for local governments.
3. WMATA unfunded Y2K $5M

Sub-total for National Capital Area (NEEDED IMMEDIATELY) $7.3M

II. Local Governments

FEMA-like fund $1.5B
To assist in their contingencies planning and program infrastructure remediation (E911, HVAC, water, etc.)
Note: estimate approximately $1M for half of the jurisdictions

Sub-total for Local Governments $1.5B

Grand Total $1.5073B

We would recommend:

1. Fast track the $7.3M for the National Capital area to Council of Governments.
2. Fast track the developing contingencies application and approval procedures for FEMA-like fund. And make available $1.5B for local government.

Montgomery County, Maryland
09/29/98 2:27 PM

STATEMENT OF DAVID J. BARRAM ADMINISTRATOR OF GENERAL SERVICES BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE U.S. HOUSE OF REPRESENTATIVES

October 6, 1998

1800 F Street, N.W.
Washington, DC 20405
(202) 501-0563

Mr. Chairman and distinguished members of this Committee, thank you for the opportunity to discuss the challenges of the Year 2000 (Y2K) and the achievements that the General Services Administration (GSA) is making in this arena. Joining me today and available to respond to questions are Tom Bloom, Chief Financial Officer (CFO), Shereen Remez, Chief Information Officer (CIO) and Paul Wohlleben, Chief Information Officer for our Public Buildings Service (PBS).

I am proud of the tremendous progress GSA has made on the Y2K conversion, both within our agency systems and as a governmentwide leader. We have received high marks from both the Subcommittee on Government Management, Information and Technology chaired by Representative Stephen Horn and the Office of Management and Budget on our quarterly progress reports, including an A- and a B+ in the two latest quarters.

If you permit me, I will share with you the progress that GSA continues to make in addressing the Year 2000 challenge.

Through collaboration of GSA's Business Technology Council, chaired by me and comprised of the Deputy Administrator, the CIO, the CFO and the agency's top leadership, we have put into action a multi-level approach to solve the Year 2000 challenge in GSA. Our strategy, simply put, has been to replace most of our systems with Year 2000 compliant technology, and to renovate the rest to meet Y2K compliance testing.

The upgrades to GSA's Public Buildings Service systems, for example, are already in the second generation of Year 2000 compliancy. Beyond simply preparing for the Year 2000, we replaced our major 27-year old legacy system with a modern Y2K compliant mainframe platform in January 1997, then replaced that system with a distributed compliant system, STAR, that increases business functionality. STAR brings commercial off-the-shelf software and web-based transactions to our agency, as well as ensuring Year 2000 readiness.

I am pleased to report that GSA, as an agency, is on schedule and I am confident that we will meet our aggressive goal of being Year 2000 compliant by January 1999. By establishing this early date for completion, we can assure our customers of our readiness for the next century.

Now, I would like to focus on the area of the greatest interest to the Committee. As you may know, GSA through PBS manages more than 300 million square feet of space in over 8,600 buildings. Our approach includes three strategies: one for the buildings we own; a different approach for the buildings we lease; and a third for other government buildings not under our control. Finally, our CFO has assured us that our financial systems will be Y2K ready to issue bills and collect revenues.

As a leader in property management, GSA has not only moved to assure the compliance of its own property, but has also begun sharing information with the private sector and other public building managers. We are also partnering, under the auspices of the President's Management Council, with the leader in international building management, the Building Owners and Managers Association, International (BOMA). I want to personally commend BOMA for its proactive leadership and accomplishments on Y2K.

Their Y2K guidebook has had widespread distribution and impact. Through public websites, interagency working groups, and cooperation with our vendors, we have provided Y2K compliance information on approximately 4,000 different building devices and products.

Early in our process, GSA developed extensive surveys on building and systems compliance for circulation among our lessors, system manufacturers, and building managers. We have received a significant number of responses to these surveys and have used the information to drive the rest of the process.

- Equipment Surveys for approximately 2000 buildings have been returned by GSA building managers. Responses received to date account for more than 75% of our inventory, a significant increase from the 50% seen in the last quarter.
- We have asked Logistics Management Institute to survey vendors on the compliance of equipment in GSA-owned space. Information on nearly 4,000 products has been collected to date and has been posted on a public website for use by all building managers, both in the public and private sector.

Vendors were asked the following questions concerning their building system components:

- Does the product have time/date functionality?
- Is the clock mechanism electronic or mechanical?
- How many digits does the product display for the year?
- Will the product's date roll over into the Year 2000?
- Is this product Year 2000 compliant?
- Does this product exchange information electronically with other products or components?

Vendors of non-compliant products were asked six additional questions:

- When will the product experience date function inaccuracies?
- What is the impact on the operation of the product?
- What is the general category of fix: chip replacement, software upgrade, system migration, or system replacement?
- What is the nature of the fix?
- What is the estimated cost of the fix?
- How much time is estimated to implement the fix?

The results of this survey have given GSA answers to many of our questions revolving around embedded chips and other building systems. Not all vendors were forthcoming with information, largely out of a fear of liability. Results to date show a very low percentage of non-compliant equipment, only 4%. This percentage is consistent with other databases and information sources in the building management industry.

- GSA sent letters to all 7,000 lessors of GSA leased space between February and June 1998. The letter requested Year 2000 certification of each lessor's space. Regions report a 30%-60% response rate to date regarding certification. Where response was lower, again the concern with liability was a factor. Follow-up letters have recently been mailed and a short survey of high-risk leased locations is also being released within the next two weeks.
- GSA's public website (http://y2k.lmi.org/gsa/y2kproducts) has been a major resource for the entire building industry, public and private. The site displays the name and manufacturer of the product, the type of problem, and the cost and nature of the fix.

- As information and sometimes misinformation appears in the media, it is important to remind our tenants not only of our progress and continued work on this issue, but also the fact that nearly all building systems have manual overrides that can be activated in the event of any problems. To this end we are planning a tenant information program which will be rolled out later this year.
- GSA's approach is based on the General Accounting Office's suggested methodology included in their "Year 2000 Computing Crisis: An Assessment Guide." The approach includes:

(1) Identifying building infrastructure systems that may be impacted by Y2K.

(2) Utilizing vendor and other information to determine the compliance or non-compliance of these systems.

(3) Modifying and replacing the systems we have identified as non-compliant.

(4) Validating systems for compliance after modification and replacement. This is expected to be completed this year.

(5) Finally, completing Contingency Plans for potential Year 2000 building systems failures by January 1999.

GSA has identified potentially impacted systems and the importance of each system to core building functions. A system was considered critical if its failure could result in:

- A risk to occupants or a loss of or damage to property;
- A significant reduction in the ability to perform normal business operations; and
- The inability to maintain the system's historic files.

Potentially impacted systems include:

- Heating, Ventilation, and Air Conditioning Systems
- Power Supply Systems
- Fire Alarms, Sprinklers, and Fire Safety systems
- Security Systems, Badge Readers, and Metal Detectors
- Passenger Elevators
- Interior Lighting
- Water Cooling, Heating and Purification Systems
- Freight Elevators and Escalators
- Exterior Lighting
- Irrigation Systems

GSA began dealing with the Y2K building systems issue in August 1997 with an extensive project management plan that includes compiling data on all systems, developing metrics to measure progress, and gaining Y2K compliance from all our lessors.

Performance Management

GSA strongly believes in using performance measures and statistics to track our progress in all of our business operations. The following metrics are being used to track the Y2K infrastructure renovation process:

- Number of products assessed for compliance (By Model Number and Vendor)
- Number of products that are noncompliant(By Model Number and Vendor)
- Quantity of noncompliant building infrastructure items within PBS
- Quantity of noncompliant items that have been renovated
- Cost to renovate noncompliant items
- Current amount of funds obligated to renovate items

All of our information is being shared through our website and through our monthly Y2K working group with over 40 tenant agencies.

In the next several months we will complete the two final phases of our program, testing and validating our systems and preparing contingency plan.

Testing

Validation and testing will occur in two phases. The first phase will test equipment that the vendor has certified as compliant and the other will test renovated and repaired systems. All testing will be documented and will include any necessary input from the vendor. Results will be reported in the Y2K building infrastructure database on our website.

Any system renovations by a contractor will include, as part of the contract, the requirement to test for Y2K compliance. A contract has been put in place for testing.

Contingency Planning:

Contingency planning is essential in guaranteeing no interruptions due to Y2K systems failures. A draft Contingency Plan is in place for systems that are anticipated to cause problems and for those that may experience unexpected failures. This plan centers on manual overrides and encapsulation, using an alternative date as a temporary work-around.

Disseminating information to building managers on temporary manual overrides is essential for successful contingency planning. For instance, the failure of a key card security system may require the use of security guards and manual inspection of identification cards. Through prompt and early warning of this temporary situation, no tenants will be surprised or delayed when entering the building.

GSA is providing guidance to all our regions for renovating noncompliant systems. This includes: documentation, firmware, assessment results, manufacturer and model number of all noncompliant products, location of those products, and the correction, including cost and schedule, recommended by the manufacturer. PBS is tracking all renovations for progress and costs.

We feel that communications and outreach on this issue is almost as important as actually replacing these systems. PBS chairs the Interagency Year 2000 Building Systems Working Group of the Committee on the Year 2000 of the CIO Council. This working group holds monthly meetings with 45 agencies and bureaus, represented by approximately 50. This forum disseminates information to GSA's tenant agencies and provides information on other relevant Y2K data. In addition GSA's website is widely used by public and private users and has expanded greatly in the last several months. The website now has over 300 vendors and approximately 4,000 products. Another website for government users only allows agencies to see the compliance status for their buildings using a password protection. Concerns about security and access systems remain our major priority for buildings.

GSA also chairs the Building Operations Sector group of the President's Council on Y2K Conversion. This group, which meets regularly, includes representatives from the Veterans Administration, DoD, HUD, and HHS, as well as BOMA. We are looking at all building types, in the private and public sector, including hospitals, State and Local Government buildings, Fire and Emergency Medical facilities, factories, commercial operations, airports and other transportation centers, postal facilities, and others. Working with our partners, we continue to develop new ways of disseminating information to the entire building management industry on this important subject.

While the focus of today's hearing is on building systems, I am pleased to share that GSA is also making significant progress in renovating, validating (testing) and implementing our IT systems, including our financial system which plays a vital role in our ability to collect revenue and pay vendors. It is also noteworthy to list some of the achievements in other GSA areas pertaining to this Year 2000 challenge. We are consistently on the forefront identifying computer products and software that may pose a Year 2000 problem if not addressed – then communicating such findings to the larger Federal and private community through web sites, speaking engagements, conferences, and other forums.

GSA continues to chair the Telecommunications Subgroup of the CIO Council's Committee on the Year 2000, which has launched a major initiative to assist government managers in identifying vulnerable system components and peripherals. GSA also co-chairs the Telecommunications Sector Group with the Federal Communications Commission.

GSA also manages and maintains the governmentwide Year 2000 Information Directory for the CIO Council on Year 2000. This directory is a one-stop source for information on Year 2000 issues for Federal agencies. It contains a database of commercial-off-the-shelf (COTS) products, which can be utilized by the entire information technology community and anyone interested in Year 2000 information.

Mr. Chairman and members of this committee, I thank you for this opportunity to speak and for the continued cooperation between Congress and the Executive Branch in meeting the Year 2000 challenge.

GSA is fully prepared to meet the Y2K challenge in the buildings area as well as in all of its areas of responsibility.

Y2K Questions and Responses for the Record
Committee on Transportation and Infrastructure

1. ***According to press accounts, OMB estimates that the cost to make necessary changes to Federal agencies systems will be $5.4 billion, and that the Administration requested $3.25 billion in FY 1998 supplemental funds to pay for Y2K repairs. How much of these amounts will GSA need to address Y2K costs for its own systems?***

   None. We are not asking for any money. GSA is funding all the costs needed to bring all its own internal systems into Y2K compliance. GSA also has a role in governmentwide systems. We have recently requested $18 million from the FY 1999 Y2K (Emergency) Appropriations Bill. This amount will cover the costs associated with Governmentwide Systems and Components. Further requests for governmentwide systems are expected.

2. ***How much has GSA spent to date to address Y2K costs? How much do you expect to spend in FY 1999?***

   To date we have spent $8.7 million on GSA's internal systems. During FY 1999 GSA anticipates spending approximately $6.5 million of our regularly appropriated funds and in excess $18 million of Y2K emergency funds as noted above.

3. ***Does GSA expect to request grant making authority to aid any business that provides services to GSA, that would otherwise fail, or at least cause disruption?***

   GSA has not traditionally had and does not plan to request such grant making authority. Other Federal agencies are looking at a variety of ways to help small businesses.

4. ***More generally, to what extent does GSA rely on the private sector to provide Services under GSA's legislative mandates? How vulnerable is GSA to a private sector failure under the Y2K transition?***

   GSA provides supplies, services and equipment to the Federal government through private sector contracts. Ninety-six percent (96%) of our activity is leveraged through the private sector. However, GSA is working with all of our private sector partners to ensure we continue to provide Y2K compliant goods and services that the Federal government needs to continue operating into the Year 2000 and beyond.

GSA relies on the same privately operated telecommunications system as the rest of the country. While we carry the same vulnerability as the corporations that provide these services, we are working with them collaboratively to avoid any Y2K problems, and are cautiously optimistic that these systems will be operational in 2000.

AT&T and Sprint provide GSA's FTS 2000 service, and both have assured us in writing of their Y2K compliance. All new acquisition actions, including FTS 2001 have contract stipulations requiring uninterrupted Year 2000 compliant service. New local contracts also stipulate Y2K compliant service.

GSA also acquires telecommunications equipment through private sector vendors. We are working with these manufacturers to address any possible problems. Our collaborative testing has focused on end-to-end reliability throughout the country, regardless of which system or components are involved. The industry, with GSA's active participation, will be conducting large-scale testing in January and February of next year.

GSA also provides supplies and services through its GSA Schedules contracts. All products that are Y2K compliant are labeled with a logo. All contracts include a clause requiring products sold to the Federal government meet Y2K compliance.

5. ***You mention that GSA received an A- and a B+ on progress reports regarding Y2K efforts. What does this mean? Do these grades relate to the scores agencies are receiving on progress under the Results Act? What was GSA's score under the latest Results Act scoring?***

Congressman Horn's Subcommittee on Government Management, Information, and Technology gave GSA the grades for our last two quarterly reports. The grades indicate the significant progress that GSA has achieved in all aspects of Y2K readiness including remediation, testing and business continuity and contingency planning. There is no correlation between Y2K efforts and the Results Act. GSA's Performance Plan received a low score in the last Results Act reporting period. However, since then we have been revising our Performance Plan to ensure that it meets all requirements.

6. ***You mentioned the use of STAR as part of GSA ensuring Y2K readiness. How will STAR assist in Y2K conversion? Yet there are reports of serious deficiencies with the STAR system. What is GSA doing to address these shortcomings in STAR? Can you describe what STAR is expected to do for the Public Building Service?***

STAR is one of twelve PBS systems that is Y2K compliant. STAR has been operational nationwide since February 1998 and provides records of the official inventory of space assignments in properties owned and leased by GSA. STAR is also used to bill GSA customers for rent on these properties.

STAR is one of several new systems critical to the future success of PBS. They are aimed at making us a state-of-the-art, provider of choice, and a competitive real estate organization. STAR is part of our overall Y2K conversion plan. It is one of our 58 mission-critical systems. Its accuracy, usability, and Y2K compliance have greatly strengthened our business capabilities.

We cannot manage our real estate unless we have accurate space and financial data, assignment by assignment, building by building, and agency by agency in local, regional and national databases. This system provides far more accurate data than was previously available.

While STAR has given GSA instant, on-line access to up-to-the-minute data, the PBS Commissioner has become aware of concerns surrounding the STAR system and specifically of the additional workload associated with its implementation. He has reviewed the issues and taken positive action to address them.

STAR has added to the workload at a time when we have many fewer realty specialists. We also, almost simultaneously, introduced other changed business practices – like the Occupancy Agreement and "New Pricing." STAR and these other new practices have forced our staff to spend time learning these new practices and the new system. However, we do consider STAR and our other new practices critical to the future success of PBS.

We were concerned as well that maintaining the data in STAR looked like a permanent new workload. We looked into the concerns raised and are working to make STAR less cumbersome and more user-friendly. Improving this system is one of our highest priorities in the Public Building Service.

We will be streamlining data presentation for our users, improving access to the underlying database, and enhancing summary reporting capabilities. To help accomplish our goals, we are reducing the number of STAR screens our employees must navigate, streamlining the "Occupancy Agreement tool" and simplifying the new pricing instructions.

Over the next year we will switch over entirely to "new billing" and get the old billing out of the STAR system. We will also conduct a second round of STAR training in each region and will have all of our buildings, leased and owned, in the system by 2000. These specific actions are designed to fully realize all the benefits from our new system.

7. ***You mention that the CFO assures you that GSA's financial systems will be Y2K compliant to issue bills and collect revenues. How does he know that?***

   The CFO actively oversees GSA's financial systems' Year 2000 compliance progress. His confidence is reinforced by having a very experienced staff conducting the conversion of the Cobol programs and the validation of the software. The staff has maintained the financial system for many years and has extensive knowledge and experience in software upgrades. GSA's financial system has nearly completed the remediation stage. We began testing the system in November 1998 allowing sufficient time before the Year 2000. During this same period replaced our NEAR financial system, with the fully Y2K compliant Pegasus financial system. The CFO reports that final validation is being conducted in an environment where the system date can be set to various dates in the years 1999-2001. This approach will ensure our ability to issue bills, collect revenues and maintain complete financial integrity into the next century.

8. ***You mention that there is a very low percentage of non-compliant equipment for GSA vendors, and a low percentage response from lessors on Y2K certification. Has GSA identified those buildings whose owners have not responded? What is GSA doing to verify the responses to your questionnaires?***

   Yes, GSA has a list of building managers who have not responded. Follow-up letters have just been forwarded to all non-responsive lessors. GSA surveyed our Federal customers on what they considered to be their most critical facilities in order to create a list of high risk leased locations. Additionally, GSA identified facilities with over 1000 employees and/or more than five stories to complete this listing of 80 high risk locations .

   Letters containing equipment surveys have also been forwarded to these 'high risk' leased locations to identify non-compliant equipment in these locations. Lessors' responses to this mailing have been positive, with most inquiring for more information or simply letting us know they are compliant.

   The majority of GSA's leased field locations, especially outside of major cities, are older buildings without integrated chips and will be unaffected by Y2K. However in some newer facilities, where the lease permits, we may perform some limited testing.

9. ***What else is GSA doing to assure Y2K conversion for building owners? What will happen if an owner refuses to convert, and demands the government pay for conversion?***

We have forwarded brief equipment surveys to those leased locations identified as 'high risk.' The intent is to encourage lessors to disclose equipment information so we can assist in the Y2K evaluation of their critical building systems/equipment.

The lessors are required to keep buildings operational in accordance with the terms of the lease - failure to do so will result in stoppage of lease payments - this by itself is generally considered a reasonable incentive to ensure continued operation. Therefore, we do not expect lessors to refuse to convert any critical building systems. No lessors have demanded that the government pay any costs in this regard. We have gone to great lengths to put lessors on notice regarding Y2K, informed them of our expectations for continuous operation, provided them access to our database of 10,000 compliant/non-compliant products, and offered to help verify compliant equipment in high risk locations.

10. I am concerned that, based on your statement, GSA is treating the Y2K issue with a generalized, non-analytic approach to its own systems, and those of GSA vendors. Has GSA performed risk analysis on its own systems, and on vendors Y2K compliance? If so, what are the results? If not, why not?

From the top level down, GSA has been extremely aware of the issue and proactive in our preparation for Y2K. It is Administrator Barram's top priority over the next year and will be given the resources and attention needed to both complete the job and validate the corrections.

GSA performs risk analysis on all of its systems. GSA has adopted the Five Phase Year 2000 Life Cycle methodology which includes: Awareness, Assessment, Renovation, Validation and Implementation. It is in the Assessment Phase where the risk analysis and system prioritization is performed. There are two major components to the risk analysis: 1) the risk assessment where GSA performs routines to identify risk and estimate the probability and impact of their occurrence; and 2) risk evaluation to determine the acceptability of risks.

Finally, the results vary from system-to-system and are situational. Some systems may have a low impact and yet have high risks while the reverse may be true for other systems. Therefore, through our Business Continuity and Contingency Planning efforts we are appropriately addressing each of our mission-critical systems.

Our oversight process is multi-faceted and includes a Year 2000 Focus Group, Year 2000 Officers, Independent Validation and Verification contractors, monthly teleconferences, monthly status reports, and Inspector General audits.

Monthly information submitted from all of our business lines is reviewed and analyzed. All areas of concern are addressed with the business line point of contact to ensure that the mission-critical systems do not experience any major slippage from its overall schedule.

Finally, we have contracted for independent validation & verification services to assist the agency in ensuring its Y2K compliance. These contractors are performing extensive tests to validate and verify the compliance of our mission-critical systems. Additionally, as a part of the agency process, we have disseminated software for validating and verifying desktop and laptop units.

Our business continuity plans evaluate both system-by-system risk and overall risk to continuing business operations. We are developing building by building contingency plans.

Testimony of

R. COFFEE COLVIN, RPA
SECRETARY-TREASURER
The Building Owners and Managers
Association (BOMA) International

Before the

Committee on Transportation and Infrastructure
House of Representatives
Congress of the United States

On Issues Relating to

"Y2K: Will We Get There on Time?"

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October 6, 1998
Washington, D.C.

Introduction: Real Estate's Perspective on Y2K

Mr. Chairman and members of the Committee, good morning, I am R. Coffee Colvin, RPA[1]. Today I have the privilege of testifying on behalf of the over 16,000 property management professionals that comprise the Building Owners and Managers Association International[2]. At BOMA, I currently serve as the Secretary Treasurer.

Before I deliver my formal remarks, Mr. Chairman, I want to publicly acknowledge the leadership role GSA, and in particular Administrator Barram has taken on this issue. GSA is a member of BOMA and many of its professionals have been great resources for private industry as we seek to address the potential issues and challenges that may face us as the millenium's odometer turns over.

My comments will not be limited to Y2K efforts with respect to public buildings but will address issues from an industry wide perspective. The reasons for not singling out public buildings are two-fold: first, I am not sure that I can; and secondly, I am not sure that such testimony would be helpful to this committee. BOMA's educational efforts have included a large percentage of government property management professionals and a great many of our private sector members, while managing or owning private sector buildings, have government employees as tenants.

Building owners and managers find themselves on both sides of the Year 2000 coin. On the one hand, property professionals are consumers who need to obtain the most accurate and up-to-date information concerning the Y2K compliance of "embedded systems"[3] in buildings directly from the manufacturers and installers of those systems. At the same time, building owners are vendors of property services from whom tenants are demanding warranties of Y2K performance. For this reason, I would like to thank the Congress for passing the "Year 2000 Good Samaritan Legislation." Because this testimony was prepared before we ever conceived that Congress could pass the legislation in such an expedited manner, earlier versions transmitted to the Committee contained our thoughts on ways in which the legislation might have been improved. This final version of our testimony retains those thoughts to reinforce how vital we viewed the legislation and how minor our suggested changes were.

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[1] As requested by the Committee rules, a copy of my biographical information is attached.
[2] Founded in 1907, the Building Owners and Managers Association (BOMA) International is a dynamic federation of 94 local associations whose members own or manage over 6 billion square feet of downtown and suburban commercial properties and facilities in North America and abroad. The membership -- composed of building owners, managers, developers, leasing professionals, facility managers, asset managers and the providers of goods and services -- collectively represents all facets of the commercial real estate industry.
[3] Embedded systems are part and parcel of building operations. An embedded system is one where software is contained within the hardware -- a microprocessor that runs a building's heating, ventilation and air conditioning, for example, or a computer chip that controls the fire and life safety equipment. Other

As the premier trade association representing commercial real estate, BOMA International has taken the lead in educating property professionals on the steps needed to ensure that critical building systems continue to function smoothly as the century date change approaches. This education is being carried out in three major areas:

1. **Year 2000 Guidebook.** In January, 1998, BOMA published *Meeting the Year 2000 Challenge,* which sets out an 8-step plan for successfully managing this issue in buildings. The guidebook has been enormously popular, with over 18,000 copies distributed to date. A copy of the book is attached to my testimony as Appendix 1.

2. **Educational Seminars.** Concurrent with the guidebook, BOMA launched a series of education programs across the country. Over 50 such seminars have been, or will be held before the end of this year.

3. **Homepage and Listservs.** Our web site, www.boma.org, is a foremost source for information on Y2K from the standpoint of building operations. BOMA has also established a listserv that facilitates discussion and experience exchange between real estate professionals on this vital issue.

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types of embedded systems are: building access controls; surveillance cameras and badge readers; refrigerant leak detectors and underground storage tank monitors; telecommunications systems; power generators and distributors; et al.

It is also our distinct honor to team up with the U.S. General Services Administration to lead the Building Operations Sector of the President's Year 2000 Conversion Council. This group has responsibility for disseminating information on prudent Y2K actions to all of real estate. This includes the owners and managers of properties as diverse as shopping centers and apartments, hotels and motels, elementary schools and colleges, chain stores and restaurants, hospitals and nursing homes, theaters and sports arenas, airports and train stations, museums and libraries, city halls and federal court houses. It is a responsibility we undertake with enthusiasm, knowledge and commitment.

Good Samaritan Legislation

BOMA is pleased that both houses of Congress have passed -- and the President intends to sign -- S. 2392, the Year 2000 Information and Readiness Disclosure Act. We believe this legislation is essential if companies are to be encouraged to disclose and exchange information related to the Y2K status of their products, services, and activities.

It would certainly assist building owners and managers in responding to concerns being raised by our tenants. At the same time, we hope it will prompt our suppliers -- the companies that manufacture a wide array of embedded systems in buildings -- to provide more information about the anticipated Y2K performance of those products.

BOMA's comments on additional ways to improve the legislation -- which were shared with every member of the House and Senate Judiciary Committee -- are attached as an appendix to our testimony today. They will provide further indication of the issues of concern to building owners and managers specifically.

Conclusion

BOMA International is embarked upon a wide range of activities designed to prepare both public and commercial building owners and managers for the potential impact of

Y2K on embedded systems. Most recently, we have agreed to actively support the plan of the President's Year 2000 Conversion Council to promote a nationwide "Y2K Awareness Week," to take place October 19-23. Given BOMA's track record in educating our members on this issue, we expect this effort to raise the profile of preparatory efforts still higher.

BOMA would be pleased to provide any further information that would assist in advancing this legislation with the modifications we propose. I would welcome any questions the Committee may have.

APPENDIX I:

CHANGES SOUGHT BY BOMA INTERNATIONAL TO THE YEAR 2000 READINESS AND INFORMATION DISCLOSURE ACT, S. 2392.

Support for the Legislation

BOMA International is prepared to actively support the legislation. We believe it will encourage businesses to share information relating to their Y2K preparations with each other and with their customers.

We see the bill as protecting our members' good faith disclosure of Y2K activities in response to tenant requests -- and encourage our suppliers to share data regarding the Y2K compliance of embedded systems in buildings.

Despite our support for the goal of this legislation, BOMA believes there are several areas in which the bill may be improved. We offer the following recommended changes with the intent of clarifying and strengthening the measure:

I. Additional Dates of Concern (Sec. 3, Definitions - subsection (3))

The transition from December 31, 1999 to January 1, 2000 represents an obvious hurdle -- as does the rollover from February 28, 2000 to the leap day of February 29. These transitions are spelled out in the bill's definition of "Year 2000 Processing." However, other dates also present a similar concern:

- **September 9, 1999** is understood by programmers to be a special processing event -- the end of a 'keep forever' instruction or a 'delete all' instruction.
- **April 9, 2000** (the 100th day of the year and a three-digit day field) may confuse microprocessors that are transitioning from the previous day, **April 8, 2000** (the 99th day of the year and a two-digit day field).

BOMA recommendation: These and any other dates that may cause problems for embedded microprocessors be referenced in the definition of "Year 2000 Processing."

II. Standard of Care (Sec. 4(a), subsection (c))

This section requires a claimant, in order to establish culpability on the part of a party making a Y2K statement, to establish that such statement was made "with a grossly negligent failure to determine or verify that the statement was accurate and not false and misleading."

We believe this standard provides too great a safe harbor. Responsible parties should be expected to make a reasonable effort to verify the accuracy of their statements.

BOMA recommendation: Delete the word "grossly" so that the sentence reads "...with a negligent failure to determine or verify..."

III. Websites – Affirmative Duty to Alert (Section 4(b))

Nearly all manufacturers of embedded building systems are utilizing the Internet to post Year 2000 related information on their homepages. Often this information is of a general nature, providing a cheerful assurance that the systems produced by that company are, by and large, Y2K compliant.

The difficulty with this medium of communication is two-fold:

- First, statements made on manufacturers' homepages are targeted to a broad audience and may not contain information directly relating to Y2K testing performed on specific products. Thus, while such general statements may not be "knowingly false, inaccurate… or made with an intent to mislead or deceive," they are often, at the very least, unhelpful.

- Second, it is difficult to imagine that "no clearly more effective method of notice is practicable" than posting Year 2000 information on a company's website. BOMA has encouraged our members to communicate directly with tenants concerning Y2K plans and activities -- and we expect that building system manufacturers have a similar duty to provide relevant information directly to their customer, the building owner or manager. While web pages are very useful media for conveying marketing information, we ought not expect them to take the place of more personal responses to building owners' inquiries about Y2K testing, warranties, etc.

BOMA recommendation: This section should be stricken from the bill, so that Year 2000 websites are treated exactly the same as other forms of communication.

IV. Defamation or Similar Claims (Section 4(c))

Under this section, "...the maker of any Year 2000 statement shall not be liable with respect to such statement, unless the claimant establishes by clear and convincing evidence... that the statement was made with knowledge that the statement was false or with reckless disregard as to its truth or falsity."

The phrase "clear and convincing evidence" concerns us. This criterion is not used in the main section of the bill, Sec. 4(a). Why is it added here? This is a standard that falls closer to the "beyond a reasonable doubt" benchmark in criminal law than "preponderance of the evidence" in civil law. A party should prevail if it can establish that the Year 2000 statement was made with intent to mislead.

BOMA recommendation: Delete the passage "by clear and convincing evidence, in addition to all other elements of the applicable action." The rest of Section 4(c) would remain unchanged.

V. Exclusion for Consumer Information (Section 5(a))

We are uncertain as to why the bill would "not cover statements made directly to a consumer in connection with the sale of a consumer product by the seller or manufacturer" of said product.

Many products that are considered "consumer" are also found in the commercial sector. In the real estate industry, many embedded systems (thermostats, filters, smoke detectors, etc.) could easily be construed as consumer products. In that case, Year 2000 statements made in good faith to a building owner or manager (the 'consumer' of the product) would not receive the liability protection afforded by the bill -- and the manufacturers of those embedded systems may choose not to reveal data on their compliance.

BOMA recommends that this section be deleted, or that it be modified to address "consumer products being used in commercial enterprises."

VI. New Section: Responsibility to Provide Year 2000 Information

While the legislation would encourage information sharing, it falls short in not taking the next essential step -- namely requiring companies to affirmatively produce data on the Y2K compliance of the products it manufactures.

BOMA recommendation: The bill should establish a penalty for any company that has introduced products into the marketplace (whether software or embedded systems) that are potentially affected by the Y2K problem, if such company has disseminated no information by December 31, 1998. The penalty for failure to provide good faith Y2K information should be double damages and recovery of reasonable attorneys' fees.

VII. "Caveat Software Emptor"

The "Good Samaritan" legislation passed by the Senate (S.2393) contains a disclosure mandate on parties selling Y2K remediation product of software.

Specifically, the bill requires vendors to place parties on notice that their traditional contract or civil causes of action may be impaired by the bill, and any warranty of reliability needs to be specifically outlined in a contract.

BOMA agrees with both the resulting language and the intent of the Senators who demanded the language. BOMA and its members need information from vendors and protection from disclosure of the language is warranted. An immunity for actions arising from a Y2K claim is not, however, what most consumers, nor we at BOMA are willing to surrender in order to receive that information.

Biography

R. COFFEE COLVIN, RPA

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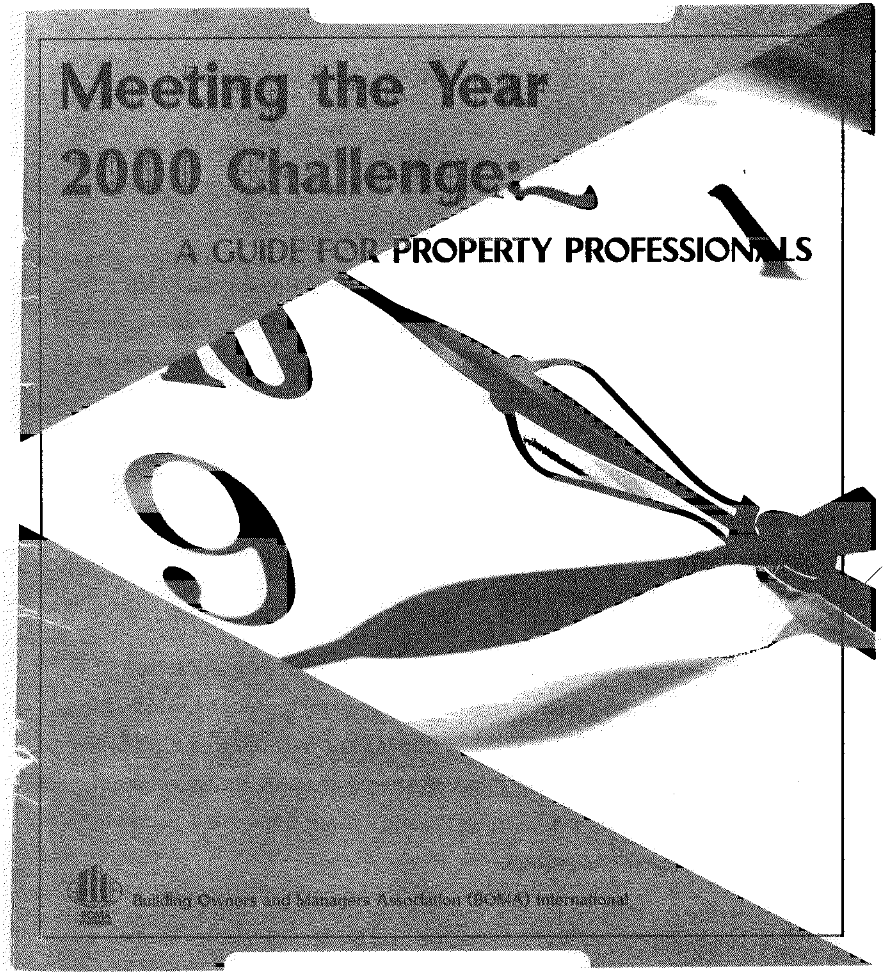
R. Coffee Colvin is Vice President and Corporate Secretary of Birmingham Realty Company, where he has worked since 1979. He has served as President, Vice-President, Treasurer, and Board Member of BOMA/Birmingham, as well as held the positions of President, Vice President, and Treasurer for BOMA's Southern Region.

Mr. Colvin has been equally involved at the International level since 1987, serving as a Past Director and as the Vice Chair of the Government Policy and Affairs Committee. He has also been a member of BOMA International's Executive Committee, Board of Governors and Communications Committee.

A native of Birmingham, Mr. Colvin is extremely active in his community as well, serving on the Boards of the Re-Entry Ministry, the Episcopal Campus Ministries of the Birmingham Clerics, and the Kiwanis Club of Birmingham. In addition, he is a member of the Cathedral Church of the Advent Episcopal (Vestry Member), the Birmingham Country Club, The Club, Inc., the American Historic Racing Motorcycle Association, and the American Motorcyclist Association.

Mr. Colvin holds an Associate degree in Science from the Marion Military Institute, a Bachelor of Science from Auburn University, and a Master of Business Administration from Samford University.

He served in the United States Army in the 1960's and was stationed for two years in Germany.



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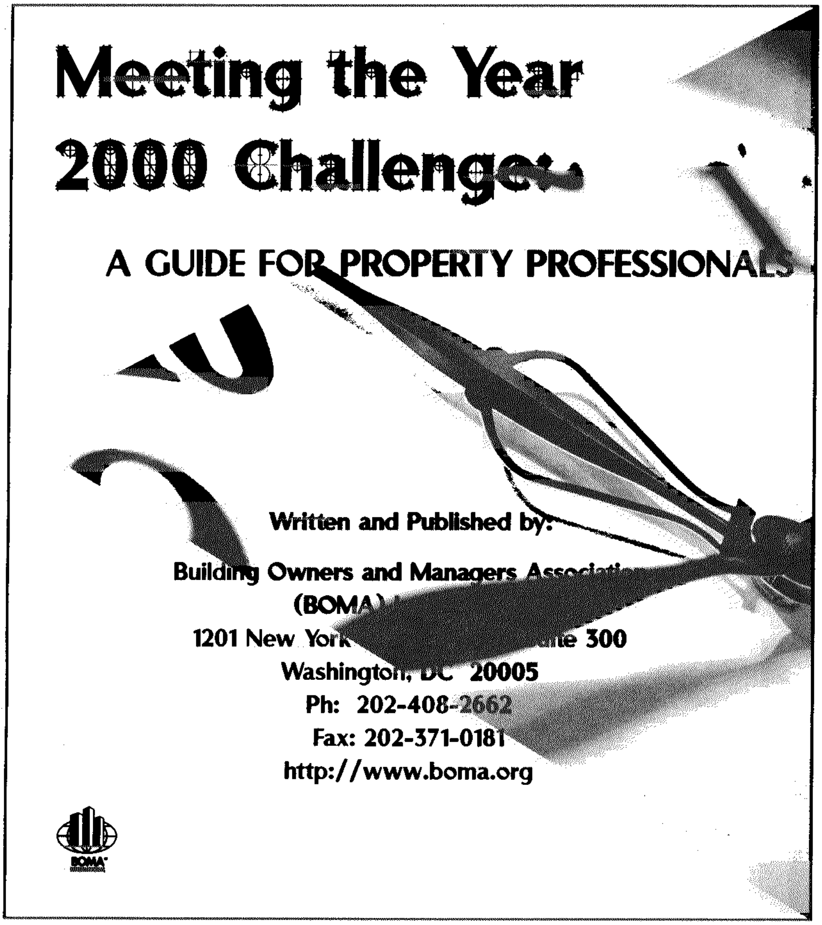

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About the Building Owners and Managers Association (BOMA) International

The oldest and largest commercial real estate trade association, BOMA International is a dynamic federation of over 100 local associations. BOMA members own or manage over six billion square feet of commercial properties and facilities in North America.

BOMA members form a respected peer network and the organization is valued as a resource for education, research, and representation before government.
A variety of products and services are offered for commercial real estate professionals, from *Skylines*, BOMA's award winning monthly news magazine, to the *Experience Exchange Report*, an annual compilation of expense and income data for commercial buildings and facilities.

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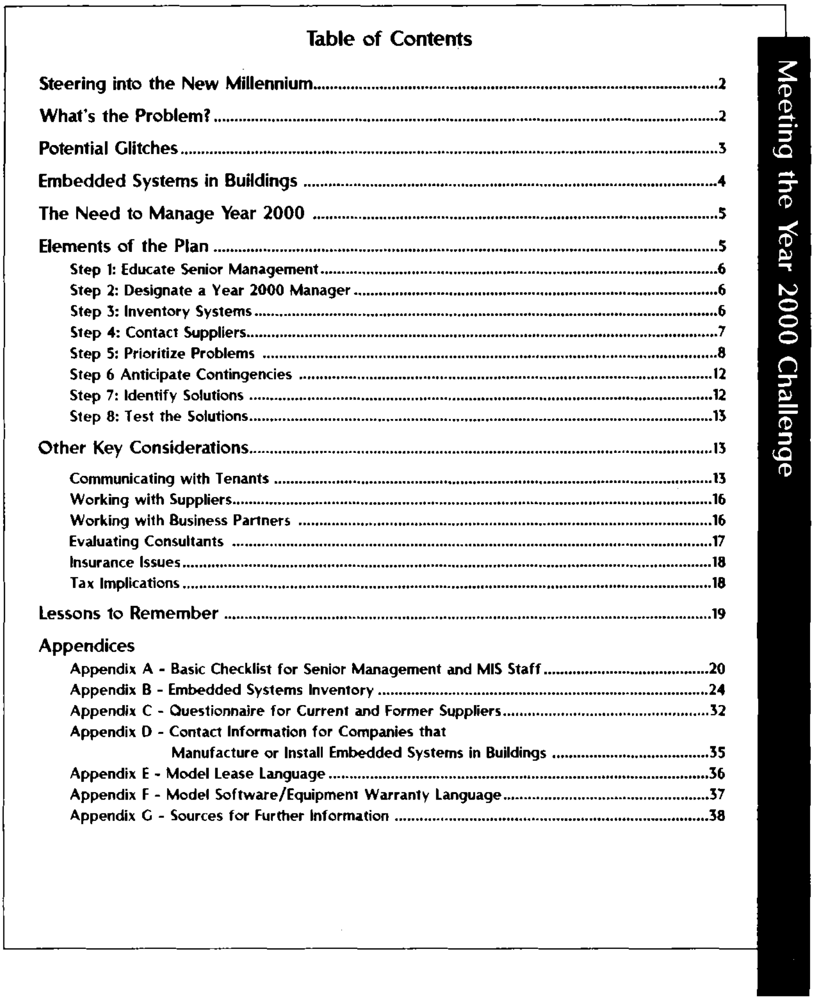

Meeting the Year 2000 Challenge

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Meeting the Year 2000 Challenge: A Guide for Property Professionals

A Foreword from BOMA's President

It's been called the "Year 2000 Problem" and the "Millennium Bug," and it raises immediate concerns for the operation and management of buildings. 'It' is the inability of many computer programs to recognize the digits "00" as referencing the year 2000 and not the year 1900.

This is not just a technical matter. It's a business problem, too, with safety, insurance, and legal ramifications. And as I write this, the deadline is just six quarters away.

Software that controls building systems – such as lighting, security, elevators, parking, heating, ventilating and air conditioning – is likely to be affected. The same goes for financial and leasing programs integral to the ownership and management of real property. Computers that misinterpret the date may crash, causing a variety of headaches. The business interruption and inconvenience could have tenants up in arms.

When January 1, 2000 arrives, how ready will your firm be? Will it have met the challenge posed by this immovable deadline?

The key is to begin putting a good faith effort into place right now. The sooner you start, the sooner potential problems can be identified and actions taken to avert them. Even if every potential problem is not flagged or fixed, you will have conducted due diligence and be in a defensible position for the future.

This guidance shows you how to develop a Year 2000 plan... how to implement it step by step... and how to communicate your progress with tenants, lenders, and others.

We urge you to act on the Year 2000 Challenge. As with other challenges that real estate has successfully addressed, this issue can be a platform to demonstrate your company's competence and dedication to customer service. Make it so!

Sincerely,

W.S. (Bill) Garland
President
BOMA International

Steering Into the New Millennium

This booklet provides guidance to help property professionals manage the Year 2000 Challenge and avert its serious consequences – particularly where building systems are concerned. A coordinated plan is essential. The plan starts by gaining answers to basic questions, such as:

- What types of systems that run your company's properties are potentially affected?
- What information about these systems is available from the manufacturer or installer?
- What steps need to be taken with tenants, service contractors, insurers, and other business partners?

As this information is gathered, potential problems can be identified and prioritized. Actions to correct them – and a timetable for doing so – can then be established. Above all, it's important to get started, since the Year 2000 will be here in a matter of a few business quarters.

What's the Problem?

The Year 2000 problem is all about dates. Back in the 1960s, when applications software began to be written, computers were expensive and contained relatively little memory. In order to maximize storage space, programmers used a numeric shorthand to signify the date – for example, March 8, 1966 became 030866 (month, date, two-digit year). This took up slightly less space than entering the date as 03081966 (month, date, four-digit year). Over thousands of programs and millions of lines of code, this 'shorthand' saved a considerable amount of memory.

The programmers at the time didn't worry about how their programs would interpret a date in the 21st century, because they assumed their applications software would be rewritten well before the Year 2000. Progress in information technology ultimately led to much less expensive computers with far greater memory – but those advances were implemented without the original applications software being rewritten. 'Patching' or upgrading the software was found to be easier than rewriting it.

So many of the most advanced computers today – whether mainframes or PCs – run software with the same programming shortcuts of 30 years ago. This means that the Basic Input/Output System (BIOS) of your desktop PC, for example, could misinterpret 010100 (January 1, 2000) for January 1, 1900. While computer manufacturers are now providing upgrades (and software firms are offering programs to test for compliance), many pre-Pentium systems are likely to be affected.

Potential Glitches

Any program that relies on dates to do calculations could be confused and fail to work correctly. Here's a for-instance. A tenant's lease began on June 1, 1995 and runs through June 1, 2000. When asked to calculate the lease payment due on January 1, 2000, the computer compares the dates as it always has, except now the lease appears to date 'back' to June 1, 1900. A number of scenarios are possible. The computer may:

- Conclude that the lease is non-existent
- Decide to bill the tenant for 95 years of back rent
- Reject the data and crash, taking other systems with it.

A computer crash is only one scenario. The system could appear to be running normally and, in fact, be making faulty calculations. By the time the error is detected, your tenants could be alarmed and your data irrevocably damaged.

Problems could actually occur before the century date change. If a program calculates based upon the elapsed time between event 'A' and event 'B,' any of its calculations projected beyond January 1, 2000 are subject to error. Take a property management program that schedules maintenance activities based upon the last time the given system (elevator, boiler, chiller, etc.) was serviced (event 'A') and the amount of time between needed servicing. If the next maintenance activity (event 'B') comes after January 1, 2000, the computer may foresee the date incorrectly and decide that maintenance is no longer called for – or conclude that the next servicing will be required in 100+ years.

The same 'look ahead' problem could affect leasing programs. For example, a tenant's advance payment made in 1999 for a lease beginning in 2000 could fail to be properly posted. Similar problems could befall accounting and inventory programs, employee benefit programs, asset management, energy management or environmental management programs – in fact, any system that calculates elapsed time in performing its functions.

Concerns arise with any system that is 'date sensitive,' that is, a system that recognizes the date or day of the week, or that looks ahead to schedule. A program that calculates the day of the week based solely on the last two digits of the year is likely to conclude that January 1, 2000 is a Monday – because January 1, 1900 was. However, January 1, 2000 in fact falls on a Saturday.

Adding insult to injury is the fact that 2000 is a leap year. If the computer decides that March 1 follows February 28 (as happened in 1900), the system could malfunction. In general, the older your hardware or software is, the more vulnerable it will be to problems associated with the year 2000.

Embedded Systems in Buildings

The Year 2000 problem is especially challenging for 'embedded systems' that are part and parcel of building operations. An embedded system is one where software is contained within the hardware – a microprocessor that runs a building's heating, ventilating and air conditioning, for example, or a microprocessor that controls the fire and life safety equipment.

The following are examples of embedded systems:

- HVAC controls
- Boilers
- Chillers
- Flowmeters
- Valves
- Actuators
- Filters
- Thermostats
- Leak detectors
- Underground storage tank monitors
- Lights
- Power generators
- Elevators
- Alarms
- Smoke detectors
- Sprinklers
- Phones
- Fax machines
- Local area networks
- Wide area networks
- Building access systems
- Security systems
- Postal scales and meters
- Automatic teller machines

Any product with an embedded microprocessor is at risk. Estimates are that between 5 to 20 percent of embedded systems could fail to function properly because of the millennium date change. The challenge for property professionals is to identify which systems are most at risk and take steps to ensure that the problems actually experienced are as close to zero as possible.

Three hurdles make it more difficult to address the Year 2000 vulnerability of embedded systems than for 'IT' (information technology) software such as Word for Windows or financial management programs:

1) Specifications on embedded systems are not generally published, making it difficult to ascertain how dates are encoded.

2) Embedded systems are not designed to be manipulated by the end user. Knowledge of how to test an embedded system for Year 2000 compliance resides with the manufacturer of the equipment or of the microprocessors in that equipment.

3) The concept of 'interoperability' – which has rapidly been embraced by many different manufacturers of building systems – means that "no system is an island." A microprocessor that controls an elevator, for instance, may not present Year 2000 problems in and of itself, but may nonetheless shut down the elevator if it receives preventive maintenance information indicating that no servicing has been performed for 99 years.

The Need to Manage Year 2000

Over the past decade, property professionals have successfully navigated a range of challenges at least as big as that posed by the Year 2000. The Americans with Disabilities Act (ADA), the phaseout of chlorofluorocarbon (CFC) refrigerants, and the deregulation of the telecommunications industry have all been managed effectively by reaching knowledgeable decisions and carrying out a well-defined action plan.

The Year 2000 challenge is essentially no different. It involves technical issues – as did the ADA in its requirements for making elevators, restrooms, doors and the like accessible. It poses an operational challenge – as did the CFC phaseout in altering operation and maintenance practices for chillers. And it raises a business challenge – as telecommunications deregulation is now altering the way property owners deal with telecom providers.

The century date change raises all of these challenges at once. So the development of a management plan takes on even greater urgency. The same principle applies, however, namely: *solid planning enables potentially thorny issues to be successfully managed.*

Elements of the Plan

The key is to get started! This BOMA guide presents an 8-step plan to enable your firm to tackle this challenge successfully. By following this approach, key issues will be quickly identified, responsibilities assigned, resources dedicated, and completion dates realized.

1 Educate Senior Management

2 Designate a Year 2000 Manager

3 Inventory Systems

4 Contact Suppliers

5 Prioritize Problems

6 Anticipate Contingencies

7 Identify Solutions

8 Test the Solutions

Step 1: Educate Senior Management

The first essential step is to acquaint senior management with the Year 2000 challenge as it affects embedded systems. Use this guidebook as your lead resource.

The key message to convey is that the millennium date change doesn't just affect information technology (IT) software. Problems potentially extend to a variety of embedded systems that are critical to the operation of commercial and residential real estate. An equally important message is that the Year 2000 challenge is not simply a 'computer' issue – it has significant operational, legal and financial implications for property owners and managers, their tenants, lenders, and other business partners.

Senior management needs to understand the gravity of the Year 2000 issue and, more importantly, commit to implementing a plan that will minimize the prospect of difficulties associated with the failure of embedded systems in buildings.

Step 2: Designate a Year 2000 Manager

Next, designate a Year 2000 Manager – someone responsible for overseeing the information gathering process for your firm and the person who will serve as the recognized point of contact. This individual should have strong knowledge of the company and a practical understanding of both IT (information technology) and non-IT (embedded) systems. Of utmost importance, the Year 2000 Manager should be someone who is an excellent communicator, since he/she will need to gather information from individual property managers, from engineers and from vendors, and furnish recommendations to the company's senior management.

Appendix A outlines the basic questions that must be asked by the Year 2000 Manager – and answered as soon as possible. As information is gathered, the form can be used as a checklist for proceeding with the company's Year 2000 strategy.

Step 3: Inventory Systems

Undertake a comprehensive inventory of the embedded systems within your company's properties. Individual property or building managers should be asked to provide the following information in a timely manner:

- How many of each type of equipment or system is installed in the building;
- Who is the product's manufacturer or installer;

- When was the equipment purchased;
- What are the relevant model names and serial numbers.

In some cases, records may be difficult to obtain – where older properties are concerned, or where the ownership or management has changed hands. However, having this information readily at hand is essential. It is the foundation on which all further decision-making will proceed. (See Appendix B for a model inventory.)

Step 4: Contact Suppliers

Based on the inventory that has been carried out, contact the companies that manufactured or installed the various embedded systems in your properties, as well as firms that produced the financial management, energy management, or property management software that your company runs. Key questions to ask include:

- Does the system contain embedded microprocessors that are date sensitive?
- Is the system Year 2000 compliant? ('Year 2000 compliant' is the term used to describe systems that should operate correctly into the next century.)
- What testing has been done – or will be done – to confirm Year 2000 compliance?
- Is the company able to guarantee the system's Year 2000 compliance?
- What steps is the company willing to take to fix the system if it is not Year 2000 compliant?

Appendix C provides a model for gathering information from your company's current and former suppliers. Appendix D lists contact names for several firms that are active in BOMA International and have offered to provide information related to the century date change.

Be aware that information about older products may be difficult to obtain, especially if those products were manufactured by companies that have gone out of business or merged with other firms. From their end, suppliers may be reluctant to provide any warranty of Year 2000 compliance unless they have your company's assurance that the system has not been reprogrammed or adapted in any way since it was first installed.

Two further notes. First, make sure to document all responses your company obtains. This is not only essential information but also needed for due diligence. Second, given the large number of property professionals who need to gather similar information, it may not be necessary for you to 'reinvent the wheel.' Check with colleagues whose properties run systems manufactured by the same supplier as your company deals with. They may already have identified an embedded systems contact at the given supplier. They may also have a lead on Year 2000 compliance information for the equipment or systems in your building – although it is always best to obtain critical knowledge firsthand.

Step 5: Prioritize Problems

At this point you should be able to answer the questions noted in Step 4 for any equipment or system within your properties. Next, an assessment should be made of the relative importance of each system if it fails to operate properly.

Assign priorities on a scale of 1-10, with 1 as 'non-essential' and 10 as 'critically important.' Consider the following issues:

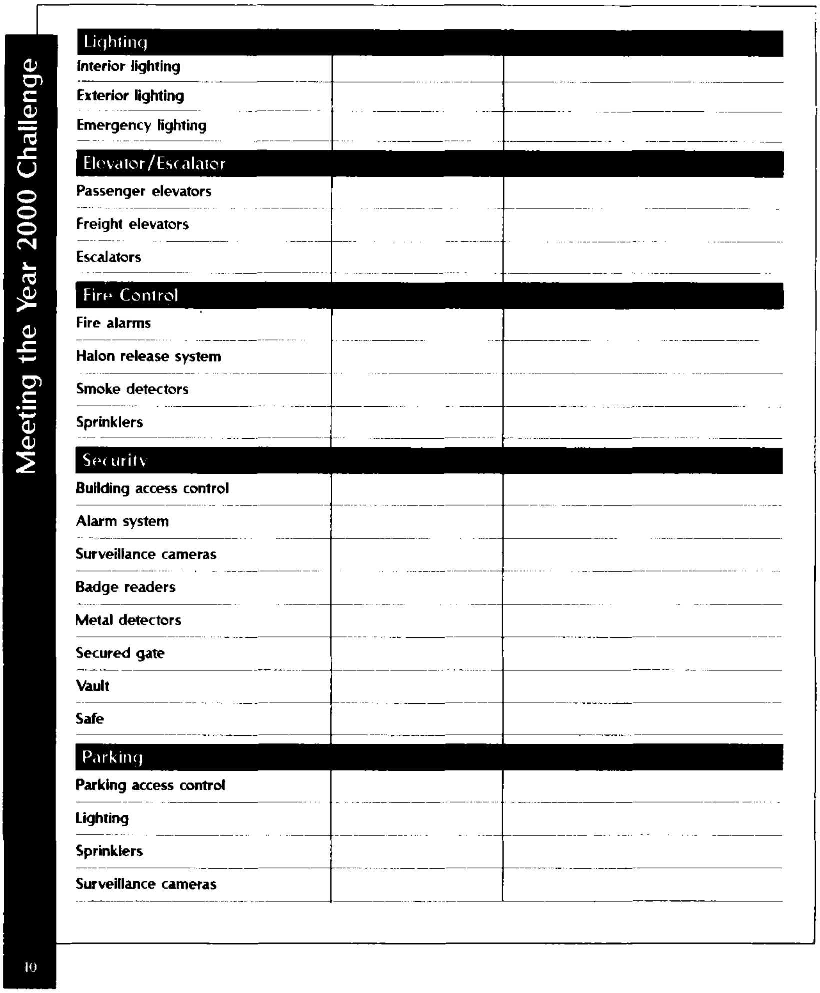
- How essential is the system to the smooth operation of the property?
- How important is the given service from the tenant's point of view?
- What is your company's legal exposure if the given system fails to operate?
- Would your insurance cover the consequences of that system's failure?
- How difficult or expensive would it be to provide an alternate service if problems are experienced with the given system?

Use the form on the next page to carry out your assessment.

Embedded Systems Priority List

Building Management and Control Systems

Environmental	Priority Level	Comment
HVAC (Includes humidification)		
Energy management system		
Chiller		
Chiller leak detector		
Boiler		
Programmable thermostat		
Carbon dioxide level monitor		
Underground storage tank monitor		
Water		
Water cooling		
Water heating		
Water purification		
Irrigation system		
Power		
Generator		
Uninterruptible power supply		
Power distribution unit		
Electrical plant		
Power management system		
Other Utilities		
Utility monitoring		
Sewer service		
Telecommunications		
Phone/PBX		
Local area network		
Wide area network		
Satellite dish/Rooftop antenna		



Lighting		
Interior lighting		
Exterior lighting		
Emergency lighting		
Elevator/Escalator		
Passenger elevators		
Freight elevators		
Escalators		
Fire Control		
Fire alarms		
Halon release system		
Smoke detectors		
Sprinklers		
Security		
Building access control		
Alarm system		
Surveillance cameras		
Badge readers		
Metal detectors		
Secured gate		
Vault		
Safe		
Parking		
Parking access control		
Lighting		
Sprinklers		
Surveillance cameras		

Internal Administrative Equipment

	Priority Level	Comment
Cash register		
Bar code generator		
Bar code reader		
Postage meter		
Mail sorter		
Time/date stamp		
Check writing machine		
Auto pen		
Check scanner		
Credit card scanner		
Copy machine		
Fax machine		
Calculator		
Scanner		
Optical reader		
TV		
VCR		
Teleconferencing equipment		
Videoconferencing equipment		

Miscellaneous

	Priority Level	Comment
Medical equipment/devices		
Traffic control equipment		
Microwave oven		
Vending machine		
Automatic teller machine		

Step 6: Anticipate Contingencies

This element of the plan flows from the question *What alternate service could be provided if the given system becomes confused by the century date change?* This issue cannot be emphasized too highly. While the goal of property professionals is clearly to minimize the chances that any system will malfunction, it is essential to develop a contingency plan 'just in case.'

Contingency planning may be relatively straightforward for certain systems but considerably more problematic for others. For example, if surveillance cameras fail to function, plans could be made for a uniformed security service to cover those areas. However, if an entry system malfunctions and tenants are unable to gain entrance to their suite, what steps would need to be taken to manually unlock the doors at the beginning of the work day and see that they are locked again at the end of the day? Potential problems with elevators, lights, phones, faxes, and HVAC raise concerns that may be yet more difficult and expensive to address. Companies that manufactured or installed the equipment can be tapped for ideas on providing alternate service.

After examining these scenarios and developing alternatives, an overall contingency plan should be developed that charts the actions to be taken if any particular system fails to work properly. All property and building managers should be provided with a copy of this plan and educated on how to implement it.

Step 7: Identify Solutions

The cost of addressing suspected problems must now be estimated, and decisions made on whether to attempt to fix existing systems or install new ones. Bear in mind that no 'silver bullet' has emerged as a way of correcting the problem – nor is one likely to. The time, effort and financial resources needed to implement solutions will be considerable.

Two methods are in use for retrofitting existing systems. The first, called *data expansion*, identifies each date field and changes the two-digit year code into a four-digit code. The second method, known as *data interpretation*, keeps the two-digit code but adds a command that enables the computer to read the dates correctly.

A variation on the data interpretation approach is to 'turn back the clock' to 1972 – a year where every date fell on the same day of the week as in 2000. While this would essentially buy 28 years of time to solve the problem, it might also create unnecessary confusion. Data expansion is considered to be the permanent fix.

As described earlier in this guidebook, embedded microprocessors cannot easily be retrofitted. For those systems, the necessary course of action is likely to be replacement – or at least a swap out of the microprocessor that runs that system. In general, the older the system, the less likely that suppliers will be willing to provide a retrofit.

On the plus side, your company's remediation effort need not bust the budget. Consider drawing funds from computer maintenance and equipment upgrades already planned, or by preempting some upgrades and new systems that would otherwise be pursued.

Step 8: Test the Solutions

It is imperative to verify that whatever remedial measures your company decides to take *actually work*. Whether an existing system has been retrofitted or a new system has been installed, it must be tested to confirm that it works when 'fed' a date in the year 2000.

This final step of the plan could well be the most resource intensive of all. While more efficient methods are emerging to test for Year 2000 compliance, your company may need to budget up to 50 percent of its Year 2000 resources for this final phase.

Manufacturers, it should be noted, may well promote their new equipment and systems as being Year 2000 compliant. Where your relationships with vendors are concerned, trust is no substitute for testing. Whether correcting date fields in an existing system or installing a new one, having the 'solution' tested independently will be critical.

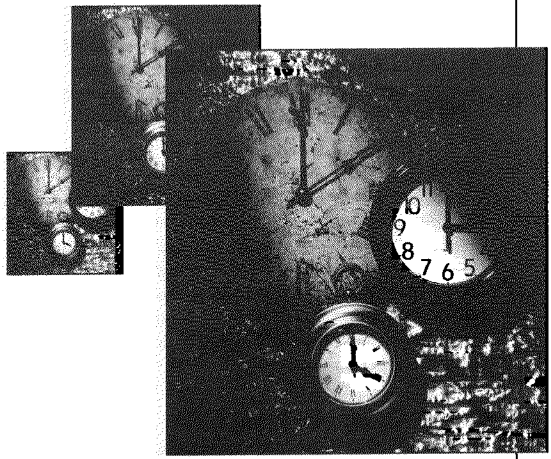
Other Key Considerations

The eight steps in the Year 2000 plan presented here relate specifically to the identification, prioritization, and remediation of potential problems with embedded systems. However, other elements will need to enter into your company's strategy – since the issues raised by the millennium date change are also likely to bring tenants and business partners into the picture. You may also want to seek out insurers or consultants (or they may come knocking on your door). Once again, prudent planning and proactive measures will enable your firm to manage these challenges and even turn them into opportunities.

Communicating with Tenants

As with any other major issue connected with building operations or management, it will be important to communicate with tenants regarding the owner or manager's Year 2000 activities. Tenants have embedded systems installed in their space (such as lights, phones, thermostats), and will want to know if or how their business will be affected.

As a part of your company's overall plan, inform tenants of the property's steps for addressing Year 2000 issues. In so doing, any problems that may arise will not come as a complete surprise to them or elicit an adverse reaction. Let tenants know – especially those whose leases extend beyond December 31, 1999 – that the Year 2000 status of building systems and equipment is being thoroughly evaluated, and that the suppliers of such systems are being contacted. Where tenants have control over embedded systems in their space, apprise them of the need to undertake a similar plan, and offer to provide assistance if appropriate. (A model letter is provided on the next page.)



Model Letter for Tenants

Date

Dear:

The turn of the century is approaching – and with it, certain considerations that we want you as our tenant to be aware of.

Owing to the way they were programmed, some computers may not accurately recognize the century date change. They may read the digits "00" in the year 2000 as representing the year 1900. Computers that misread the date may fail to operate as they should. The same applies to any equipment with embedded microprocessors.

As your building owner/manager, we are committed to ensuring that all systems in the property continue to function smoothly as we approach January 1, 2000. We are now taking steps to determine whether any of the building systems could be affected. These include: conducting an inventory of building related systems; contacting their original manufacturer or installer; and determining if retrofits or replacements are appropriate.

These actions will be taken for the building systems under our company's supervision or control. However, some equipment or systems may have been purchased or installed by your company, or be under your company's control as a tenant. Such systems may include: phones and faxes; heating, ventilating and air conditioning controls; lighting controls; access control systems; etc.

If you are directly responsible for such systems, steps should be taken to determine whether there is any cause for concern connected with the century date change. We would be glad to provide information to assist you in this activity.

We want your business – and ours – to continue running productively. This letter has outlined the actions we are taking to avert potential problems. We will keep you apprised of further developments and expect that you will apprise us of the same.

If you have any questions, please contact __________ at _________. Thank you for your attention to this matter.

Sincerely,

(Name)

Building Manager

Working with Suppliers

The most critical information concerning the Year 2000 status of embedded systems – as well as financial management, property management and other software – is held by the firms that manufactured or installed these products. The onus is therefore on them to furnish the necessary data and back up any claims they make.

As you work with these suppliers, seek a firm commitment that products sold to your company as of a date certain are Year 2000 compliant. Wherever possible, compliance should be verified through testing by a third party. Even if independent verification is obtained, it is a good idea to have the system tested on site when it is being commissioned and before delivery is accepted. Additionally, urge your suppliers to cover the expenses associated with making any of their products installed in your properties Year 2000 compliant.

Prospectively, property owners should obtain a written guarantee that new embedded systems and/or IT software is Year 2000 compliant. (Appendix F offers model warranty language.)

Working with Business Partners

The Year 2000 challenge is, of course, not limited to embedded systems in buildings. It could affect the entire world of information technology, including hardware (mainframes, midrange computers, PCs), operating systems (such as Windows, DOS, MVS and Unix), and applications software.

Any firm that your company has transactions with – whether financial or simply information exchange – should be contacted, both to ascertain what they are doing to avoid potential Year 2000 problems, and to communicate what your firm is doing. Such contacts include:

- Lenders
- Insurers
- Utilities
- Environmental or engineering consultants
- Service contractors (e.g., maintenance and repair firms)
- Property owners (if your firm manages their buildings)
- Property management firms (if your company retains their services)
- Parent companies or subsidiaries of your firm

Evaluating Consultants

Many firms in the computer and consulting fields are offering Year 2000 assessment and remediation services. In evaluating whether such services are appropriate for your company, consider the following criteria:

- Does your company have the skills and resources internally to carry out some or all of the Year 2000 plan described in this booklet? If so, a consultant may not be necessary – or you may decide to go 'outside' for a particular set of services.
- Does the firm you are considering have specialized knowledge or expertise regarding embedded systems in buildings?
- Ask the firm to explain its methodology (its approach for assessing and remedying Year 2000 problems) in plain English, and have your MIS staff evaluate the soundness of its approach. While the methodology may be highly technical (indeed, it may be presented in a flow chart), the explanation should make sense and have only limited amounts of computer jargon.
- How long has the firm been in business? What references can they present? Obtain specific recommendations and investigate them.
- What insurance does the firm carry? This should be checked out thoroughly given the liability issues associated with interruptions in essential building services.
- If the firm claims some type of 'certification,' ask what exactly has been certified and through what organization – then obtain confirmation. (Note: the Information Technology Association of America, ITAA, certifies the process by which companies perform Year 2000 work. ITAA does not certify the companies themselves.)
- Is the firm able to test its solutions?
- What type of warranty will the firm provide?
- Obtain a timeframe for beginning and ending each phase of the project.

Caveat emptor! Given the large amounts of money that are being spent on averting Year 2000 problems, 'fly by night' firms have sprung up that may well disappear before too long. Let the buyer beware.

Insurance Issues

While the Year 2000 problem is, at its core, a technical issue, it raises considerable liability concerns. If building systems fail to operate correctly, tenants may attempt to sue the building owner or manager. Your company needs to determine whether its liability coverage addresses interruptions in service if, for example, the doors to tenant suites are locked, or telephone service goes down, or the heating system fails to operate. Don't be surprised if your policy does not cover such situations due to the failure of embedded systems.

Be aware that some carriers are rewriting their policies to specifically exclude Year 2000 issues. Other carriers are offering Year 2000 coverage, but at exorbitant rates and with requirements for costly audits between now and January 1, 2000.

It may be prudent to explore this area, but do so cautiously. Gather responses to the following questions:

- Will the policy specifically cover problems caused by embedded systems in buildings?
- Will your firm be expected to pass a series of audits and, if so, at what cost?
- What responsibility, if any, will accrue to the manufacturers of systems installed in the building?

Tax Implications

Recognizing the huge sums that American business will be spending to remedy Year 2000 problems, the Internal Revenue Service has issued guidance in the form of Revenue Procedure 97-50. This Revenue Procedure states that the IRS will allow taxpayers to amortize costs related to the millennium date change or deduct those costs in the year they were incurred.

The IRS also indicates that, except in extraordinary circumstances, Year 2000 costs will not be eligible for the tax credit under Internal Revenue Code section 41, which relates to "qualified research."

For further information, contact the IRS' Office of Assistant Chief Counsel (Income Tax and Accounting Division) at 202-622-4950.

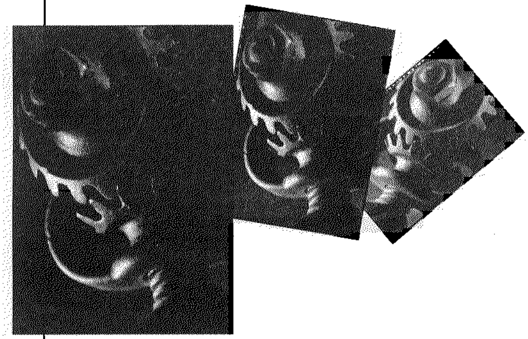
Lessons to Remember

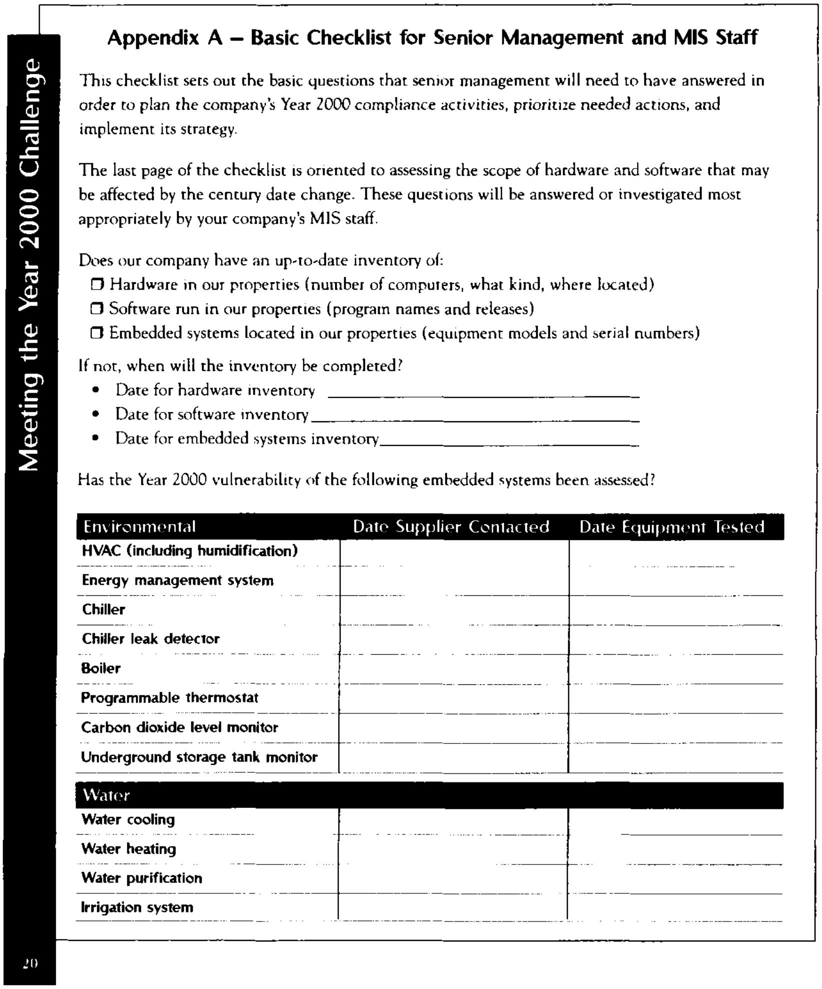
Time is of the essence if property professionals are to meet the challenge represented by the millennium date change. As of January 1, 1998, only eight quarters remain until the century date change. This is not much time to act given the extent of potential problems.

The key is to start – and to demonstrate that a good faith effort is being put into effect. The sooner the plan is implemented, the sooner potential problems can be identified and actions taken to avert them. Remember, this issue has a definite, immovable deadline.

Given the many challenges surrounding embedded systems, even a well designed and aggressive management plan may not flag or fix every potential Year 2000 problem. However, a good faith effort will have identified the most important embedded systems in any building and moved to ensure that these continue working properly. You will have conducted 'due diligence' and be in a defensible position should problems occur.

By developing your plan, putting it into effect, and communicating your progress with affected parties, you can successfully tackle the Year 2000 challenge. As with the other challenges that real estate has historically surmounted, this issue can be a platform to demonstrate your company's competence and dedication to customer service.





Appendix A – Basic Checklist for Senior Management and MIS Staff

This checklist sets out the basic questions that senior management will need to have answered in order to plan the company's Year 2000 compliance activities, prioritize needed actions, and implement its strategy.

The last page of the checklist is oriented to assessing the scope of hardware and software that may be affected by the century date change. These questions will be answered or investigated most appropriately by your company's MIS staff.

Does our company have an up-to-date inventory of:
☐ Hardware in our properties (number of computers, what kind, where located)
☐ Software run in our properties (program names and releases)
☐ Embedded systems located in our properties (equipment models and serial numbers)

If not, when will the inventory be completed?
- Date for hardware inventory ______________________________
- Date for software inventory______________________________
- Date for embedded systems inventory______________________________

Has the Year 2000 vulnerability of the following embedded systems been assessed?

Environmental	Date Supplier Contacted	Date Equipment Tested
HVAC (including humidification)		
Energy management system		
Chiller		
Chiller leak detector		
Boiler		
Programmable thermostat		
Carbon dioxide level monitor		
Underground storage tank monitor		
Water		
Water cooling		
Water heating		
Water purification		
Irrigation system		

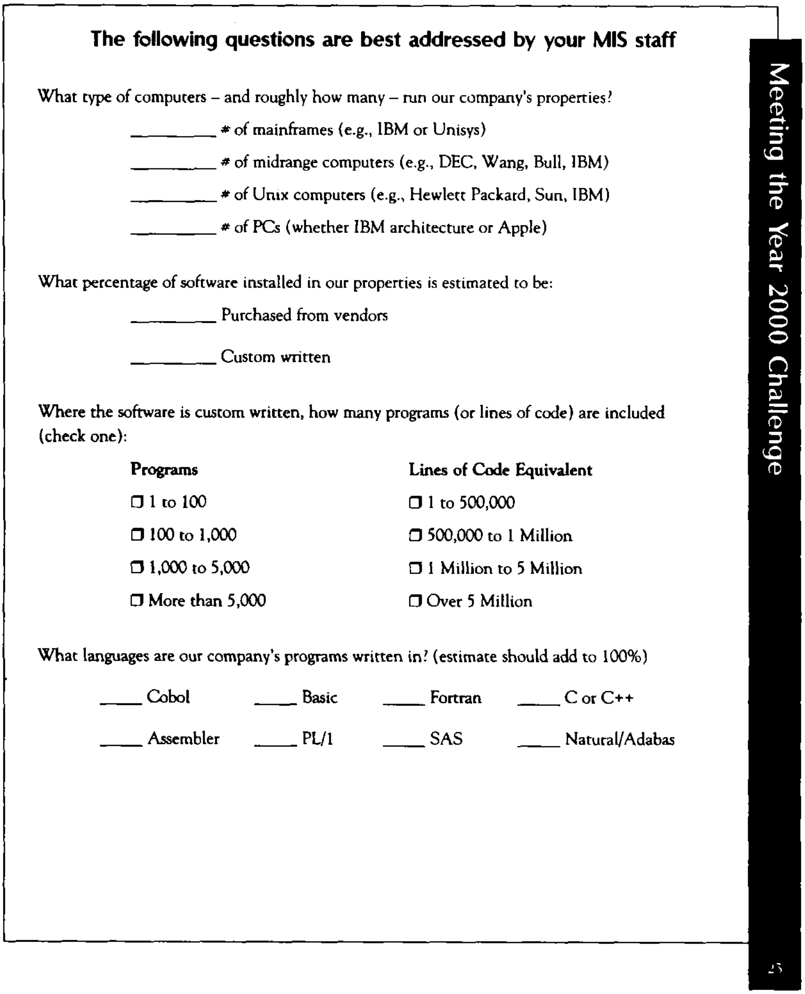
Power	Date Supplier Contacted	Date Equipment Tested
Generator		
Uninterruptible power supply		
Power distribution unit		
Electrical plant		
Power management system		
Other Utilities		
Utility metering		
Sewer service		
Telecommunications		
Phone/PBX		
Local Area Network		
Wide Area Network		
Satellite dish/ Rooftop antenna		
Lighting		
Interior lighting		
Exterior lighting		
Emergency lighting		
Elevator/Escalator		
Passenger elevators		
Freight elevators		
Escalators		
Fire Control		
Fire alarms		
Halon release system		
Smoke detectors		
Sprinklers		

Security	Date Supplier Contacted	Date Equipment Tested
Building access control		
Alarm system		
Surveillance cameras		
Badge readers		
Metal detectors		
Secured gate		
Vault		
Safe		

Parking		
Parking access control		
Lighting		
Sprinklers		
Surveillance cameras		

Has the Year 2000 status of the following IT systems been assessed?

IT System	Date Supplier Contacted	Date Equipment Tested
Leasing		
Inventory Control		
Accounts Payable		
Accounts Receivable		
General Ledger		
Employee Benefits		
Preventive Maintenance		
Facility Management		
Asset Management		
Emergency Management		
Other____________		



The following questions are best addressed by your MIS staff

What type of computers – and roughly how many – run our company's properties?

_________ # of mainframes (e.g., IBM or Unisys)

_________ # of midrange computers (e.g., DEC, Wang, Bull, IBM)

_________ # of Unix computers (e.g., Hewlett Packard, Sun, IBM)

_________ # of PCs (whether IBM architecture or Apple)

What percentage of software installed in our properties is estimated to be:

_________ Purchased from vendors

_________ Custom written

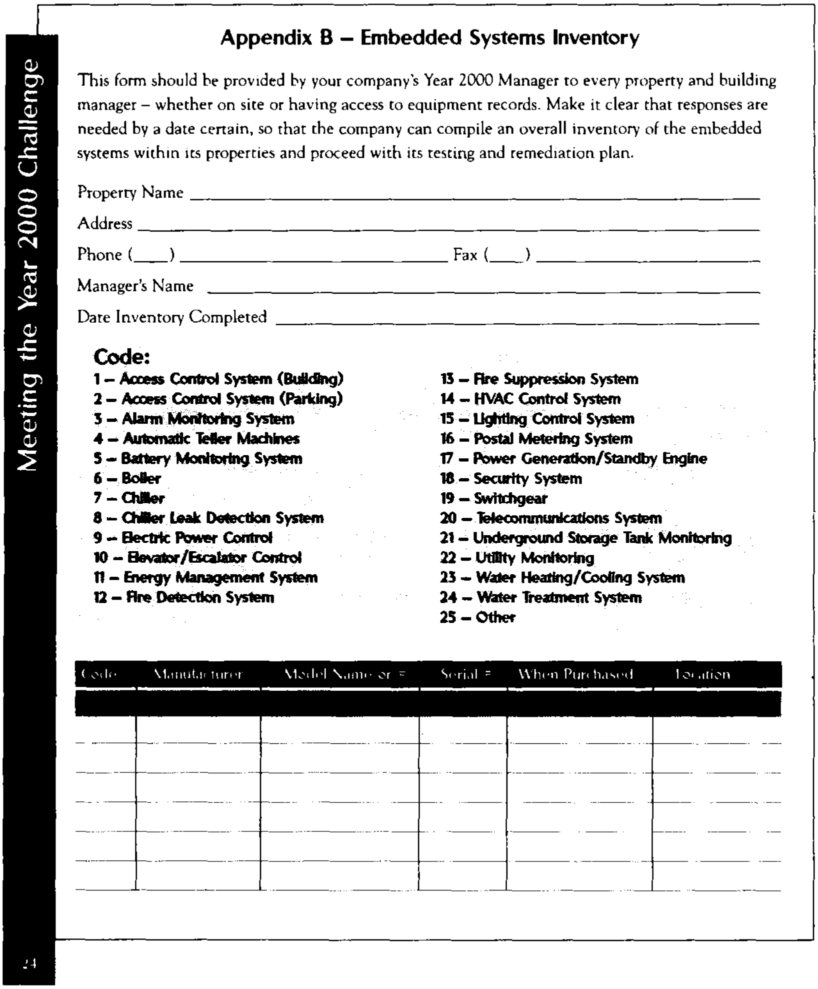
Where the software is custom written, how many programs (or lines of code) are included (check one):

Programs	**Lines of Code Equivalent**
☐ 1 to 100	☐ 1 to 500,000
☐ 100 to 1,000	☐ 500,000 to 1 Million
☐ 1,000 to 5,000	☐ 1 Million to 5 Million
☐ More than 5,000	☐ Over 5 Million

What languages are our company's programs written in? (estimate should add to 100%)

_____ Cobol _____ Basic _____ Fortran _____ C or C++

_____ Assembler _____ PL/1 _____ SAS _____ Natural/Adabas



Appendix B – Embedded Systems Inventory

This form should be provided by your company's Year 2000 Manager to every property and building manager – whether on site or having access to equipment records. Make it clear that responses are needed by a date certain, so that the company can compile an overall inventory of the embedded systems within its properties and proceed with its testing and remediation plan.

Property Name ______________________________

Address ______________________________

Phone (___) ______________ Fax (___) ______________

Manager's Name ______________________________

Date Inventory Completed ______________________________

Code:

1 – Access Control System (Building)
2 – Access Control System (Parking)
3 – Alarm Monitoring System
4 – Automatic Teller Machines
5 – Battery Monitoring System
6 – Boiler
7 – Chiller
8 – Chiller Leak Detection System
9 – Electric Power Control
10 – Elevator/Escalator Control
11 – Energy Management System
12 – Fire Detection System
13 – Fire Suppression System
14 – HVAC Control System
15 – Lighting Control System
16 – Postal Metering System
17 – Power Generation/Standby Engine
18 – Security System
19 – Switchgear
20 – Telecommunications System
21 – Underground Storage Tank Monitoring
22 – Utility Monitoring
23 – Water Heating/Cooling System
24 – Water Treatment System
25 – Other

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

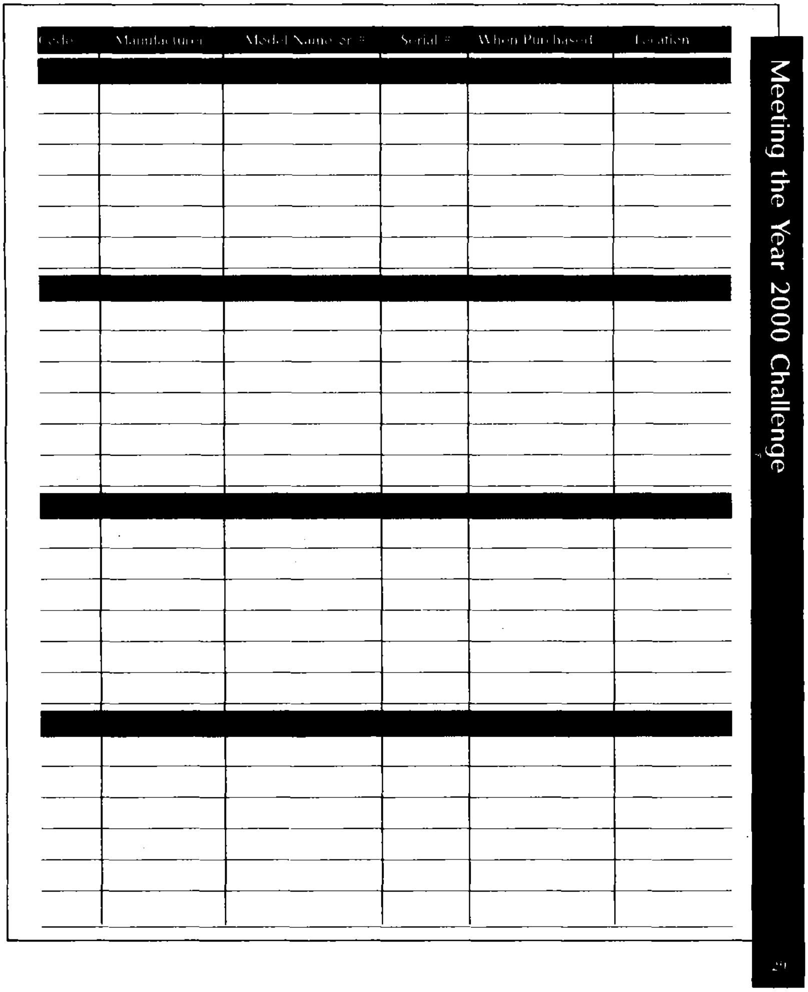
Meeting the Year 2000 Challenge

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location



Meeting the Year 2000 Challenge

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Code	Manufacturer	Model Name or #	Serial #	When Purchased	Location

Appendix C – Questionnaire for Current and Former Suppliers

This model cover letter and questionnaire are designed to gather information concerning the Year 2000 status of embedded systems from the manufacturers or installers of such equipment in your company's properties. Responses should be sought speedily and be provided to the Year 2000 Manager as well as disseminated to the individual property managers responsible for buildings or facilities in which the given systems are installed.

Date

Contact Name
Company
Address
Address

Re: Year 2000 Compliance Information

Dear :

We are currently assessing the Year 2000 status of equipment and systems installed in our company's properties. Information provided by [name of supplier] is critical to ensuring that these systems operate smoothly into 2000 and beyond. We therefore ask for your cooperation in addressing this issue.

Our inventory indicates that the following products manufactured by [name of supplier] are installed in our properties:

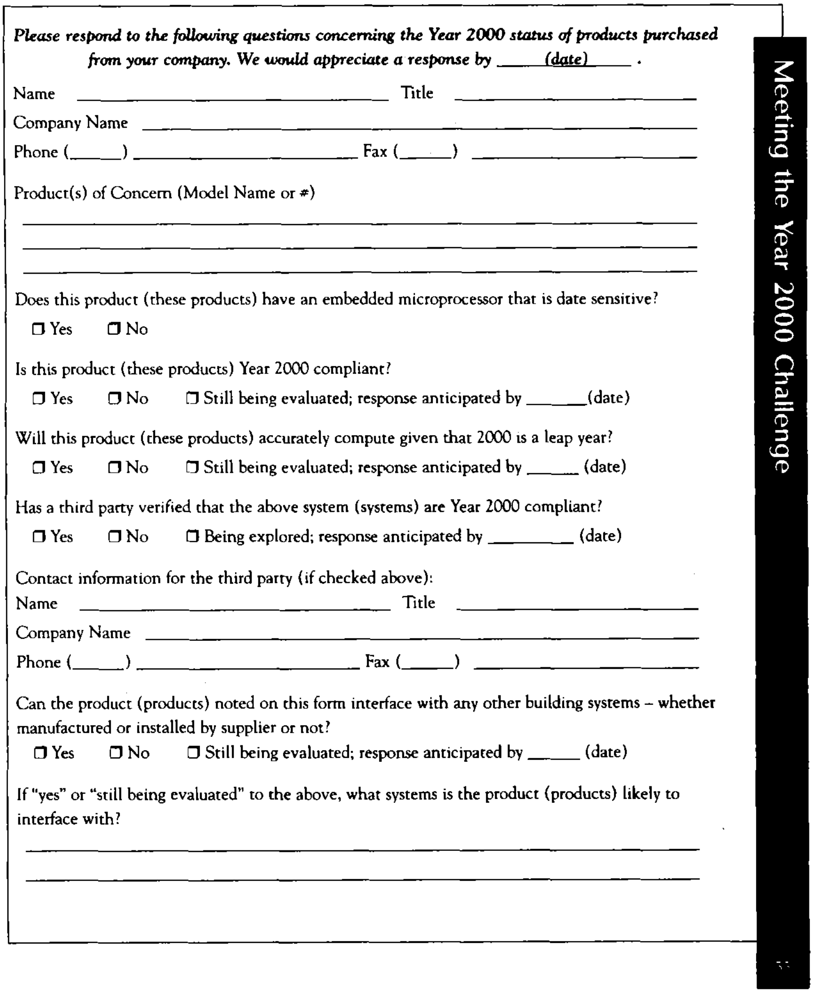
Indicate the product name(s) and/or model number(s) here

The enclosed questionnaire is designed to ascertain the Year 2000 status of the above-mentioned system(s). Essential issues include: whether the product(s) is (are) date sensitive; whether testing has been performed to verify Year 2000 compliance; what steps are recommended to fix the product(s) if Year 2000 compliance is not verified; when retrofits or upgrades will be made available; and what cost is expected to be involved.

Please provide your written response by ___(date)____. (You may make as many copies of this questionnaire as are needed.)

If you have any questions, please contact __________ at _________. Your expeditious reply will be appreciated.

Sincerely,



Please respond to the following questions concerning the Year 2000 status of products purchased from your company. We would appreciate a response by ___(date)___ .

Name ______________________ Title ______________

Company Name ______________________________

Phone (____) ______________ Fax (____) ______________

Product(s) of Concern (Model Name or #)

____

____

____

Does this product (these products) have an embedded microprocessor that is date sensitive?

☐ Yes ☐ No

Is this product (these products) Year 2000 compliant?

☐ Yes ☐ No ☐ Still being evaluated; response anticipated by ______(date)

Will this product (these products) accurately compute given that 2000 is a leap year?

☐ Yes ☐ No ☐ Still being evaluated; response anticipated by _____ (date)

Has a third party verified that the above system (systems) are Year 2000 compliant?

☐ Yes ☐ No ☐ Being explored; response anticipated by ________ (date)

Contact information for the third party (if checked above):

Name ______________________ Title ______________

Company Name ______________________________

Phone (____) ______________ Fax (____) ______________

Can the product (products) noted on this form interface with any other building systems – whether manufactured or installed by supplier or not?

☐ Yes ☐ No ☐ Still being evaluated; response anticipated by _____ (date)

If "yes" or "still being evaluated" to the above, what systems is the product (products) likely to interface with?

____

____

Meeting the Year 2000 Challenge

Is the product (products) noted on this form capable of being tested to determine if they are date sensitive?

☐ Yes ☐ No ☐ Still being evaluated; response anticipated by ______ (date)

Can the product (products) noted on this form that are not Year 2000 compliant be retrofitted or otherwise fixed?

☐ Yes ☐ No ☐ Still being evaluated; response anticipated by ______ (date)

If "yes" to the above:

☐ Supplier able to retrofit
☐ Customer can retrofit with instructions from supplier
☐ Retrofit available from third party

Contact information for the third party (if checked above):
Name ______________________________ Title ________________________
Company Name ____
Phone (_____) ______________________ Fax (_____) ___________________

What type of 'fix' is likely to ensure this product (these products) are unaffected by the century date change? (check all that apply)

☐ Chip replacement ☐ Software upgrade ☐ Hardware upgrade
☐ User needs to reset date (no other product modification is required)
☐ No fix; existing model must be replaced with newer one
☐ Other (please describe) ____

What is the estimated cost to implement action noted above? ____________________

How much time is required to implement action noted above? ____________________

Will supplier cover part or all of the cost?

☐ Yes ☐ No ☐ Possibly; response anticipated by _________ (date)

Will supplier warranty the Year 2000 compliance of the product (products) noted on this form? Describe response below.

____
____

Please add any other information pertinent to this issue:

____
____

Appendix D – Contact Information for Companies that Manufacture or Install Embedded Systems in Buildings

The following companies, which are National Associate Members of BOMA International, have provided contact information for property professionals who are addressing the Year 2000 challenge.

Carrier Corporation
P.O. Box 4808
Syracuse, NY 13221
ph: 315-432-6000
fax: 315-432-6620
email: contact.carrier@carrier.utc.com
web site: http://www.carrier.com
("or contact your local Carrier representative")

Dover Elevator Systems
Attn: Mr. Jeff Runtz, National Marketing Manager
P.O. Box 2177
Memphis, TN 38101
ph: 601-393-2110
fax: 601-342-8738
email: jruntz@doverelevators.com
web site: http://www.doverelevators.com

Galaxy Control Systems
Attn: J. William Cuddington, Director of Sales and Marketing
3 North Main Street
Walkersville, MD 21793
ph: 301-845-6600
fax: 301-898-3331
email: info@galaxysys.com
Web site: http://www.galaxysys.com

Honeywell Home and Building Control
Honeywell Plaza
P.O. Box 524
Mail Station MN27-7246
ph: 800-500-9403
fax: 612-951-2086
email: y2kinfo@hbc.honeywell.com
web site: http://www.honeywell.com

Johnson Controls
Attn: Mr. Steve Thomas, Manager of Marketing Communications
507 East Michigan Street
Milwaukee, WI 53202
ph: 414-274-4129
fax: 414-347-0221
email: stephen.a.thomas@jci.com
web site: http://www.johnsoncontrols.com

McQuay International
Attn: Mr. Jeff Hamilton, Marketing Manager, McQuay Controls
13600 Industrial Park Boulevard
Minneapolis, MN 55441
ph: 612-553-5182
fax: 612-553-1667
email: jeff.hamilton@mcquay.com
web site: http://www.mcquay.com

Millar Elevator Service Company
Attn: Mr. Dick Schneider, Modernization Marketing Manager
1530 Timberwolf Drive
Holland, OH 43528
ph: 419-867-5242
fax: 419-867-5392
email: dick_schneider@schindler.com
web site: http://www.millar.com

Montgomery KONE
Attn: Mr. Tom Kinney, Vice President of Information Systems
or Mr. Tom Hubell, Sales Services Director
One Montgomery Court
Moline, IL 61265
ph: 309-764-6771
fax: 309-757-1469
email: montg-2@netexpress.net
web site: http://www.montgomery-kone.com

Schindler Elevator Corporation
Attn: Mr. John Delorenzi, Manager of Service Engineering
P.O. Box 1935
Morristown, NJ 07962
ph: 973-397-6309
fax: 973-397-3619
email: John_DeLorenzi@schindler.com
web site: http://www.schindler.com

Siebe Environmental Controls
Attn: Mr. Mark Rehwald, Communications Manager
1354 Clifford Avenue
Loves Park, IL 61111
ph: 815-637-3119
fax: 815-637-5306
email: mrehwald@siebe-ec.com
web site: http://www.siebe-env-controls.com

Trane Company
Building Automation Systems Division
4833 White Bear Parkway
St. Paul, MN 55110
ph: 612-407-4000
fax: 612-407-4192
web site: http://www.trane.com
("or contact the Trane sales representative closest to you")

York International Corporation
Attn: Mr. Jim Fowler, Chief Information Officer
P.O. Box 1592
York, PA 17405
ph: 717-771-6645
fax: 717-771-6052
email: james.fowler@york.com
web site: http://www.york.com

Appendix E – Model Lease Language

The following language is suggested for property owners and tenants wishing to clarify Year 2000 responsibilities in the context of a lease agreement.

Obligation by Landlord

The Landlord shall take reasonable steps to ensure that all computer controlled facility components are Year 2000 compliant prior to January 1, 2000. Compliance shall be verified by physical testing of the components and/or written confirmation from the component or systems manufacturer.

Obligation by Tenant

The Tenant shall take reasonable steps to ensure that all computer controlled facility components that have been purchased or installed by Tenant, or over which Tenant has control, are Year 2000 compliant prior to January 1, 2000. Compliance shall be verified by physical testing of the components and/or written confirmation from the component or systems manufacturer.

Definitions

"Computer controlled facility components" refers to software driven technology and embedded microchip technology. This includes, but is not limited to, programmable thermostats, HVAC controllers, auxiliary elevator controllers, utility monitoring and control systems, fire detection and suppression systems, alarms, security systems, and any other facilities control systems utilizing microcomputer, minicomputer, or programmable logic controllers.

"Year 2000 compliant" means computer controlled facility components that accurately process date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations.

Appendix F – Model Software/Equipment Warranty Language

The following model contract language is designed to offer Year 2000 'coverage' for equipment or software prospectively purchased by property owners.

Software License

The Seller warrants that the software licensed to Buyer (which is included in equipment or systems provided by Seller to Buyer) shall include acceptable design and performance specifications that will not abruptly end or provide invalid or incorrect results during operation on or after January 1, 2000. Seller's software will conform with the foregoing design and performance specifications at no additional cost to the Buyer. Seller agrees that the software may be used by Buyer prior to, during, and after the calendar year 2000. Seller agrees that, at no additional cost to Buyer, the software will ensure Year 2000 compatibility by providing: (1) date data century recognition; (2) calculations that accommodate same century and multi-century formulas; and (3) date values and date data interface values that correctly identify the century.

Building Equipment/Systems

The Manufacturer warrants that the software contained in the equipment or systems that Manufacturer provides for use by [Company Name], shall include, at no additional cost to [Company Name], design and performance features and capabilities to ensure that the software will not be inaccessible and that the software will not provide invalid or incorrect results. Manufacturer warrants that such software design will ensure Year 2000 compatibility by providing: (1) date data century recognition; (2) calculations that accommodate same century and multi-century formulas; and (3) date values and date data interface values that correctly identify the century. In addition, the Manufacturer warrants that the Year 2000 leap year calculations will be accurate and will not result in software, firmware, or hardware failures. The Manufacturer agrees that it shall not substitute any equipment or systems supplied to [Company Name] which does not meet the foregoing requirements.

(or)

The Contractor warrants that the software contained in the equipment or systems that Contractor provides for use by [Company Name], shall include, at no additional cost to [Company Name], design and performance features and capabilities to ensure that the software will not be inaccessible and that the software will not provide invalid or incorrect results. Contractor warrants that such software design will ensure Year 2000 compatibility by providing: (1) date data century recognition; (2) calculations that accommodate same century and multi-century formulas; and (3) date values and date data interface values that correctly identify the century. In addition, the Contractor warrants that the Year 2000 leap year calculations will be accurate and will not result in software, firmware, or hardware failures. The Contractor agrees that it shall not substitute any equipment or systems supplied to [Company Name] which does not meet the foregoing requirements.

Appendix G: Sources for Further Information

More information is being compiled and disseminated on Year 2000 issues all the time. Following is an outline of further sources:

- Information Technology Association of America (ITAA), 202-522-5055. ITAA maintains a directory of qualified Year 2000 consultants. Also operates a web site at www.itaa.org.

- Two general sites for Year 2000 issues on the web are www.year2000.com and www.y2k.com. Both have links with many other sites.

- A site specializing in embedded systems is www.y2knonit.com. Serves as a clearinghouse for information on vendors and consultants, and offers a users' forum on Year 2000 issues. Some sections of this site are accessible by fee only.

- Two information technology sites with frequent articles on Year 2000 issues are www.cnet.com and www.cto.com.

- *Computerworld* magazine can be obtained either on newsstands or at www.computerworld.com.

- A compilation of computer magazine articles is located at www.zdnet.com.

- A Year 2000 'newsletter' is located at www.2k-times.com.

- Year 2000 information for facility managers is part of this site, www.fmdata.com.

- A site with information on Year 2000 standards being developed by the American National Standards Institute (ANSI), www.nssn.org.

Note: BOMA International's Web site, www.boma.org, has a special section devoted to the Year 2000 issue in buildings. For starters, the project management checklist and equipment inventory form in this very guidebook can be downloaded from BOMA's page. Also featured are links to system manufacturers' Web sites...links to software that will test your PC for the millennium bug...and a chat room to share questions, information and experience (www.boma.org/sig). BOMA's site is well worth a look for further assistance in managing the Year 2000 challenge.

BOMA International encourages all property professionals to look to BOMA National Associate Members when seeking assistance in developing your Year 2000 strategic plan.

BOMA would like to express its gratitude to JOHNSON CONTROLS and CTA INCORPORATED for support in making this publication possible.

The Controls Group of Johnson Controls is a world leader in the design, engineering, manufacture and installation of building automation and control systems for HVAC, energy management, lighting, fire safety and security. We have Year 2000 solutions for all our systems, including our industry leading Metasys products. Contact your local Johnson Controls office, or see our Web Site: http://www.johnsoncontrols.com.

CTA INCORPORATED, a nationwide information and embedded systems services company, provides a range of Year 2000 services for clients in the areas of assessment, remediation, risk mitigation, testing, and project management. CTA's Century Solutions 2000 (TM) methodology has been certified by the Information Technology Association of America. Phone: (888) CTA-2000 Web Site: http://www.cta.com.

Building Owners and Managers Association (BOMA) International
1101 New York Avenue, NW • Suite 800 • Washington, DC 20005
Ph: 202-408-2662 • Fax: 202-371-0181 • http://www.boma.org

Written Statement of
Robert Darwin
Equilon Pipeline Company
on behalf of the

American Petroleum Institute
1220 L Street, N.W.
Washington, D.C. 20005-4070
202-682-8000

Association of Oil Pipe Lines
Suite 604
1101 Vermont Avenue, N.W.
Washington, D.C. 20005-3521
202-408-7970

before the

House Committee on
Transportation and Infrastructure

October 6, 1998

I am Robert Darwin, a consultant with Equilon Pipeline Company LLC. For the past four years, I have been responsible for remote operations of Shell Pipe Line Corporation's pipeline and terminal facilities. I appreciate the opportunity to discuss the pipeline industry's computer readiness for the year 2000.

I am here today on behalf of the American Petroleum Institute (API), a trade association with more than 400 member companies involved in all aspects of the oil and natural gas business, and the Association of Oil Pipe Lines (AOPL), a trade association of common carrier oil pipelines whose members transport over 80 percent of the crude oil and petroleum products that travel by pipeline in the United States.

API and AOPL have been working collectively with the government, other private companies and associations to identify Year 2000 problems and develop and share solutions. Simply stated, the Y2K problem is an insufficiency in computer programs that causes them to mishandle four digit years. Unfortunately, it is not a simple problem. Date handling codes show up within other computer applications and are embedded in computer chips. Programs written with this deficiency show up throughout the petroleum industry, from computer applications to process control devices.

The *potential* results from mishandled dates range from incorrect financial transactions to pipeline stoppages to potential environmental and safety hazards. We believe that, with respect to the petroleum pipeline industry, this potential is extremely low, thanks in part to the industry's timely recognition of the problem and wide-scale efforts to address it.

These efforts have been coordinated on an industry-wide basis through our trade associations—but they have a foundation in individual company initiatives. The key to success there has rested on three critical factors. The first is senior level sponsorship and commitment. This helps ensure commitment from all levels in an organization. The second success factor is business entity ownership and accountability. Management and all functional areas, including information systems experts, must be involved and accountable. The third success factor is managing the project within the corporate environment. Managing it outside normal processes could create a disjointed effort, resulting in potential failure.

Alliances for addressing the problem

Companies have worked within their own trade associations to address the Y2K problem and in conjunction with the federal government. There is no advantage for an individual company, sector, or even industry to have resolved the problem when other companies, sectors, or industries have not. The integrated nature of each industry requires a cooperative approach.

Association efforts. Associations have been actively addressing the problem for some time. For example AOPL has held workshops addressing the Y2K issue at its Annual Accounting and Regulatory Conference in each of the last three years. Another example is the American Petroleum Institute. API created a Y2K task force in 1997 to help plan and coordinate industry efforts, including efforts within the pipeline industry, to address the Year 2000 problem. All companies within the petroleum and natural gas industries were welcomed to participate. The focus of the task force was on building and maintaining an open dialogue among participants, sharing information, and evaluating progress. API also established an Internet web page as a tool for disseminating information necessary to convert petroleum industry computer systems.

Government and industry. The President's Council on Year 2000 Conversion has provided a good forum for the many different sectors of the oil and gas industry to address Year 2000 issues. The council encouraged trade groups to reach out to their members to assess their state of readiness before 2000, reflecting the Administration's belief that the problem should be solved by companies, not the federal government.

API and AOPL joined with other industry associations—including the American Gas Association, the Natural Gas Supply Association, the Independent Petroleum Association of America and 10 other groups—to sponsor a comprehensive study of the oil and gas industry's computer readiness for the year 2000, the dawn of the 21st century. The Year 2000 assessment survey was coordinated with the Oil & Gas Working Group of the President's Council on Year 2000 Convergence. The Oil & Gas Working Group was chaired by the Federal Energy

Regulatory Commission and included the Department of Transportation's Office of Pipeline Safety and the Departments of the Interior, Energy and Defense. The survey was sent to more than 800 companies representing more than two-thirds of America's oil and gas consumption; the respondents included 57 pipeline companies responsible for some 70 percent of the crude oil and petroleum products delivered by pipeline.

As we reported when we presented the survey data to the Federal Energy Regulatory Commission on September 18, ***all*** respondents to the survey are confident that they will have resolved ***all*** computer problems by the time the new century arrives. We will repeat the survey each quarter between now and the year 2000, so we'll know if that assessment changes. Moreover, even if our current outlook proves to be overly optimistic, the pipeline industry is prepared. Our goal is to resolve any problems without compromising either the environment, the safety of our workers, or the communities surrounding our facilities.

As part of the survey, companies were asked to list the greatest obstacles the company would be facing in achieving Year 2000 readiness by December 31, 1999. The majority of the comments submitted by pipeline respondents and the challenges listed by oil pipelines in assessing, addressing and correcting the Y2K problem can be categorized in three areas:

- Vendor issues (i.e. concerns over software and system certification);
- Resources issues (i.e., lack of human resources, time, or funding); and
- Supply chain issues (i.e., whether customers or suppliers will be ready)

While a single company cannot address these three issues, we believe that overall preparedness can greatly be enhanced by the kinds of activities our associations have already taken along with the President's Council of Year 2000 Convergence.

Industry contingency planning

Our preparations for the year 2000 are a natural extension of our industry's already extensive contingency planning. Oil and gas pipelines have long used sophisticated computer systems, many custom-built. For the most part, the people who design those systems are part of our regular staffs. So they have a vested interest in ensuring they run smoothly.

We use embedded processors for remote communications, monitoring, and control – devices commonly known as Remote Terminal Units (RTUs) and Programmable Logic Controllers (PLCs). Since the late 1970s, we have also used embedded processors to regulate the rate of flow in our pipelines, to operate alarms, to gauge the liquid levels in our systems, and in the "smart" sensors that track the pressure and temperature of the products our pipelines carry.

The initial design and rollout of these devices was extremely conservative. We did not rely on date clocks for control and monitoring. We did not use magnetic storage for embedded processors. We did not use low cost – but relatively unreliable – dynamic RAM semiconductor memories.

Instead, our embedded processors were designed to operate in ambient industrial conditions. They were designed to validate control actions on several levels before execution. Battery backup ensures uninterrupted power flow. The software running our embedded processors is commonly known as "firmware" – meaning it is not easily defeated.

Our people responsible for our embedded processors and other computer systems alerted us to the Y2K problem about as early as any group in American industry. So for some time now, we've been identifying and addressing potential problems. We are replacing equipment, rewriting computer programs, testing components of our systems, and developing contingency plans. We are testing rollover to the year 2000, leap years and accessing historical data. We are installing controls built around fail-safe components and strategies. Company contingency plans cover every area of operations from pipeline operations to communications to security and emergency response procedures to environmental monitoring and control.

While individual companies are implementing programs to test components of their pipeline systems, unfortunately, a physical test of the entire national pipeline system is not feasible. The national oil pipeline system is highly interconnected and supplies millions of customers continuously. Taking the system out of service for some period of time would lead to massive supply disruptions and cost millions of dollars. And, when completed, the test would still not be able to replicate the actual circumstances that will be in place midnight December 31, 1999, bringing into question any results that might be obtained.

In short, we've already done many of the things the rest of American industry is just now starting to do to address Y2K problems. As entrepreneurs, oil pipeline companies have an enormous interest in maintaining safe and reliable service. We don't want our pipelines shut down by events beyond our control. Our efforts to prepare for the year 2000 have been aimed at ensuring that shutdown will not occur and oil supplies will be available as needed.

Can we absolutely guarantee no problems? Of course we can't. No one knows the future and something can always go wrong. But it does mean we can deal with any problems, if and when they occur. Because we employ so many redundant control systems, the chances of a national pipeline system shutdown – due to a Y2K problem or anything else – are extremely small. Assuming it did, it is highly unlikely that oil would escape from any pipeline.

The bottom line is that if a problem does occur – and I stress again that it is very unlikely – the pipeline industry is ready, willing, and able to deal with it.

Next steps

The pipeline industry as well as the oil and gas industry as a whole will continue to prepare for Y2K. We are in the process of moving toward a formal joint program with the telecommunication and electric utility industries. We will also reach out beyond U.S. borders to our counterparts overseas. And we will seek to accommodate states interested in participating in our activities. The results of the next industry survey will be published in February 1999.

STATEMENT OF THE HONORABLE ALAN M. HANTMAN, AIA

ARCHITECT OF THE CAPITOL

BEFORE THE COMMITTEE ON TRANSPORTATION

AND INFRASTRUCTURE

OCTOBER 6, 1998

ACCOMPANIED BY:

MICHAEL G. TURNBULL, AIA, ASSISTANT ARCHITECT OF THE CAPITOL

DANIEL E. HANLON, P.E., DIRECTOR OF ENGINEERING

RICHARD A. KASHURBA , DIRECTOR, INFORMATION RESOURCES MANAGEMENT

ROOM SB-15

U.S. CAPITOL BUILDING

WASHINGTON, D.C. 20515

202-228-1793

Testimony of the Honorable Alan M. Hantman, AIA
Architect of the Capitol

Mr. Chairman, I am pleased to present to the Committee a status report on the Architect of the Capitol's response to the the many year 2000 challenges that the millennium change brings the agency. The approach of the year 2000 (Y2K) presented a major problem to the continued operations of many automation systems that we operate internally and rely upon to provide the Congress with routine and critical business processes. Many of these systems were at risk of failure because of their inability to discern dates between the present and upcoming centuries. At the same time, there are external services that we are responsible for procuring to support Congressional activities, such as utilities, and we have also been working to assure the continuance of these services in the next millennium. I will address our internal processes first.

AGENCY APPROACH TO THE YEAR 2000 CHALLENGE

The AOC approached this task by looking at what other federal agencies were doing to meet the year 2000 challenge. The Best Practices Subcommittee of the federal government's Interagency Year 2000 Committee had developed a high level model and structured approach for year 2000 programs that was recommended by the General Accounting Office. This model included five phases, and was the basis for organizing and implementing our year 2000 strategy. The five phases are:

Awareness	To define the year 2000 problem and gain executive level support and sponsorship, establish a year 2000 program team and develop an overall strategy, and ensure that everyone in the organization is fully aware of the issue.

Assessment	To assess the year 2000 impact on the enterprise, identify core business areas and processes, inventory and analyze systems supporting the core business areas, and prioritize their conversion or replacement. Next, develop contingency plans to handle data exchange issues, lack of data, and bad data. Finally, identify and secure the necessary resources.
Renovation	To convert, replace, or eliminate selected platforms, applications, databases, and utilities, as well as modify interfaces.
Validation	To test, verify, and validate converted or replaced platforms, applications, databases, and utilities, and to test the performance, functionality, and integration of converted or replaced platforms, applications, databases, utilities, and interfaces, in an operational environment.
Implementation	To implement converted or replaced platforms, applications, databases, utilities, and interfaces, and to implement data exchange contingency plans, if necessary.

YEAR 2000 PLANNING AND MANAGEMENT

The initial stages of the AOC year 2000 effort were directed toward creating a general awareness of the problem, and developing an assessment. The agency's Information Resources Management (IRM) Division was tasked with taking the lead in this effort. IRM developed a high level plan for performing the renovation, validation, and implementation phases of the approach model. Year 2000 problems and solutions varied according to the type of system and the organization that had deployed them. Therefore, the project model was employed in a recursive fashion, where each system was assessed, and a detailed plan for renovation, validation, and implementation was executed.

In order to reduce the risk of system failures, information systems were targeted to be compliant well before October 1, 1999.

There were numerous systems and related year 2000 activities that had to be identified and tracked. IRM compiled an inventory of all systems and equipment that had potential year 2000 related problems. The inventory was inclusive of all AOC automated systems and was organized by office, major system, and detail component. Each major system and detail component was analyzed for year 2000 compliance. A determination of the status of each item was made using vendor information, independent verification and validation by AOC, or other test sources. For all items found not to be year 2000 compliant, solutions and implementation plans, consistent with the year 2000 project completion date, were developed.

Creating a comprehensive system inventory was a central and necessary component of success in dealing with the year 2000 problem. There was no strict definition or limitation of types of items to be included in the inventory. Any year 2000 related item that was identified was entered into the inventory, whether it was hardware, software, or interface.

The year 2000 system inventory included each system component, a description of the system, its assessment, and its year 2000 implementation plan. A point of contact was identified, and this person was designated as the primary person responsible for year 2000 compliance for that system. Detailed plans and schedules were maintained by the designated lead personnel for their respective offices and systems. The system inventory, plans, and schedules were updated on a regular basis by IRM. A database was created to capture consolidated status information for each item in the system inventory.

IRM also developed the overall year 2000 plan and strategy, and helped disseminate year 2000 information. For each office, and for each system identified in the inventory, a lead person was designated to manage the relevant year 2000 projects, plans, and issues. A central information base on all year 2000 project plans and schedules was maintained . Awareness of year 2000 issues and results was maintained by disseminating project and schedule information, and technical bulletins through monthly status reports, newsletters, and the AOC web page.

The AOC also established a Year 2000 Committee to support increased awareness within AOC of year 2000 issues, coordinate year 2000 efforts, and share information. Additionally, the agency also participates in the Interagency Management Council, Chief Information Officer (CIO) Council Subcommittee on the Year 2000. This subcommittee addresses Government wide issues concerning year 2000, supports the development of technical solutions, and dissemination of information.

SPECIFIC YEAR 2000 SOLUTIONS AND RESULTS

As a result of all this effort, we have come along way toward meeting the year 2000 challenge. The year 2000 compliance status of major AOC systems is as follows:

Mainframe Computer Applications:

> Most all applications operating on the UNISYS mainframe computer were not year 2000 compliant and the system was phased out effective October 1, 1998. Upgrade or replacement of these applications was required. The upgrade and re-hosting of AOC Financial Systems was the largest and most critical requirement, and that was accomplished effective October 1, 1997. We also deploy a DEC VAX operating system for various engineering applications, and that is being made compliant

effective this month.

Client/Server Computer Applications:

IRM and other AOC offices developed new applications, and re-hosted some older applications to client/server architecture. These applications are year 2000 compliant. The point-of-sale and accounting applications operated by the Senate Restaurants are not year 2000 compliant, and they require an upgrade. That is being accomplished.

Network Equipment/Software:

The year 2000 impact on network equipment is minimal. Minor upgrades are required for the routing equipment and also to the network operating system. The network operating system upgrade is already complete on all platforms, with the exception of one file server.

Desktop Computer Software:

Desktop software in current use includes a mix of older non compliant and newer compliant software. Compliant office automation and application software is currently available. There are several applications being migrated to year 2000 compliant software.

Desktop and Server Computer Hardware:

Newer equipment in this category is generally year 2000 compliant. There is an existing population of older equipment that is not year 2000 compliant. These systems require upgrade or replacement, and that is being accomplished as part of our ongoing life cycle equipment replacement program.

Agency Interfaces:

Automated system interfaces are in operation with the U.S. Department of Agriculture National Finance Center (NFC) and the Department of the Treasury Financial Management Services (FMS). These employed two digit year fields in the information exchanges taking place between their systems and the old AOC financial system. The new AOC financial system is based on a four-digit date field. Based on correspondence between the AOC and the NFC, we have established a timetable to create four digit data exchange solutions that will be in place well before the year 2000. We also have worked with Treasury to assure that our electronic interface with the FMS is now exchanging data with our four-digit data field.

Embedded Systems:

Embedded systems include microchips and other electronic controls for building environmental control systems, elevator systems, and others. Assessments and renovations continue.

EVALUATION OF AOC RESULTS

With respect to our results in meeting the year 2000 challenge, I am pleased to report that we are meeting the challenge and succeeding. In the first quarter of fiscal year 1998, Senator Bennett, Chairman of the Legislative Branch Subcommittee on Appropriations, tasked the General Accounting Office to assess and track the progress of selected legislative branch agencies (the Senate, AOC, Library of Congress, Congressional Budget Office, Office of Compliance, General Accounting Office, Government Printing Office, and the U.S. Capitol Police) in their year 2000 compliance efforts. So far, the GAO has presented two quarterly reports to Chairman Bennett on the progress of these agencies, and I am pleased to report that this agency has consistently been one of the top rated agencies among the selected legislative branch agencies in their year 2000 efforts.

IRM continues to work with other AOC offices to expand and complete the system inventory, and to develop specific plans and schedules for each system where they are lacking. The target date for completion of all Year 2000 related projects is October 1, 1999. We are well on the way and are confident of our success.

OTHER YEAR 2000 ISSUES

In addition to the many systems supporting our internal operations, there are several other areas of our responsibilities and operations that have been reviewed for year 2000 compliance. These areas include engineered systems such as our energy management and controls systems, elevator controls systems, electrical systems, fire protection and life safety systems, and the systems that monitor the operations at the Capitol Power Plant. In each case year 2000 compliance for the electronic components within these systems has either been confirmed by the manufacturer, or we have established a comprehensive program to bring them into compliance in a timely manner.

EXTERNAL YEAR 2000 ISSUES

Additionally, we are working with PEPCO, our major utility that supplies electricity to the Capitol complex, as well as sources that supply fuels for the Capitol Power Plant as well as the District of Columbia Water and Sewer Authority. We are working to have each of these service providers confirm that they have exercised sufficient precaution to be able to continue delivering uninterruptible services to the Congress.

We have been advised in writing by PEPCO that they are undertaking every necessary effort to meet the year 2000 challenge. I am also meeting with the President and CEO of PEPCO to confirm their assurances of year 2000 readiness. We are also monitoring their progress through the quarterly reports they must file with the Securities and Exchange Commission. The latest report, filed for the Quarter ending June 30, 1998, indicated that PEPCO is preparing contingency plans to meet any service outages brought about by the date change. This is an area of particular concern to us, since without electric power the operations of the Congress would be severely restricted. We therefore are developing our own contingency planning in the event that PEPCO would be unable to deliver electricity.

The District's Water and Sewer Authority has assured us that all of their year 2000 issues are being addressed insofar as they might relate to continued water and sewer services to the Capitol complex.

We will be actively monitoring progress of all our key service providers for compliance with year 2000 requirements.

Mr. Chairman, that completes my general remarks. I would be pleased to respond to any questions that you or the Committee may have with respect to our response to the year 2000 challenge.

Committee on Transportation and Infrastructure
Hearing of October 6, 1998
Architect of the Capitol Responses to Questions for the Record

Question. You mention that assessments and renovation of embedded systems continue, can you provide more detail on these systems or where the agency is, in the process of evaluating the systems for potential problems?

Answer. The Architect of the Capitol has identified 40 mission critical systems for year 2000 compliance. All 40 systems have been assessed. Of those 40 systems, 9 systems have been identified as Building Environmental Control Systems or "Embedded" systems. Of those 9 systems, 6 have been renovated, validated and implemented. The three remaining systems are planned for renovation, validation and implementation by September 30, 1999.

Question. GSA is pursuing a certification program with its vendors to ensure Y2K compatibility, does the agency have any similar program set up with the manufacturers of the electronic components in its systems, such as the elevator control and electrical systems?

Answer. The Architect of the Capitol is using the commercial and non-commercial year 2000 product warranty clauses promulgated by the General Services Administration on August 22, 1997 in all contracts and purchase orders which require the delivery of computer hardware, software, and firmware, including embedded systems. The clauses require contractors to warrant that the products they furnish will be able to accurately process date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date/time data with it. Remedies to the Architect of the Capitol include repair or replacement of any product whose non-compliance is discovered and made known to the contractor during the warranty period.

Question. What is the agency's schedule for moving into the validation stage of the GAO model; or has the agency conducted any testing of its systems?

Answer. Twenty-six (26) of Architect of the Capitol's forty (40) critical systems have been validated. The remainder will be validated and implemented by September 30, 1999. AoC is developing test plans for each system. A majority of AoC's systems have been tested and implemented. The remaining systems will also be tested before implementation.

Question. Approximately how much has the Architect's office invested or plan to invest in order to address the Y2K problems?

Answer. Our estimated budget for Y2K compliance for Fiscal Year 1996 through Fiscal year 2000 is estimated to be $2,710,000.

Testimony of I. Michael Heyman, Secretary
Smithsonian Institution
Before the House Transportation and Infrastructure Committee

October 6, 1998

Good morning, Mr. Chairman and Members of the Committee. I very much appreciate this opportunity to appear before you today on behalf of the Smithsonian Institution and to present a summary of our efforts to prepare for the Year 2000. From its beginning in 1846, the Smithsonian has been an establishment dedicated to the increase and diffusion of knowledge. It is the world's largest museum, education and research complex, pre-eminent in astrophysics, tropical and environmental biology, the history of science, art history, aeronautics and space science, natural history, anthropology and materials conservation. This remarkable Institution includes 16 museums and galleries and the National Zoological Park. They were visited nearly 25 million times this past year. Millions more visited the Institution's homepage- the gateway to a new world of information transmission and sharing. I believe that it is the public character of the Institution that has led to this Committee's interest in our readiness for the Year 2000. I am pleased to report that we are well on our way to being able to assure you and the public that we are addressing the Year 2000 problems in our institution.

We formally began our preparation in October of 1997, when we surveyed the organizations within the Smithsonian to determine the status of mission critical systems. We have a top level management committee overseeing the analysis of the surveys and the status of our systems. We place special emphasis on mission-critical systems, establishment of target dates for bringing systems into compliance, planning, conversion steps, relationships with vendors, and the work-around strategies where that is necessary.

By way of background, the Smithsonian Institution is responsible for the operation and maintenance of almost six million square feet of facilities. These facilities range in age from almost new to more than 150 years old, and in size up to 1.3 million square feet in the case of the National Museum of Natural History.

The Smithsonian's Office of Physical Plant utilizes state-of-the-art facilities management techniques to ensure optimum building system performance. Automated building systems monitor and control heating, ventilation, and air conditioning equipment (HVAC); lighting and other electrical equipment; as well as alarms associated with water and sewer services.

Over the last several years, the Smithsonian has conducted a planned replacement of automated building control systems, and this year a major contract was awarded to replace the host computer platform -- or "brains"-- of the system. The host computer will be a PC-LAN (local area network) system that is entirely Year 2000 compliant. This modernization will allow us to continue to operate and monitor essential building systems in a safe, efficient and reliable manner. Absent this upgrade, these building systems would have to be started and stopped manually, requiring additional staff; and in many cases equipment and lighting would run continuously at greater energy consumption and expense, and with greater wear and tear on the equipment. Because the new system is PC-LAN based, it is much more flexible with regard to operations as well as future expansion and upgrade. Installation of this new host will be complete by summer, 1999.

A parallel phase of our building automation upgrade project includes the replacement of approximately 150 field panels throughout the buildings in the Washington area and those in New York. The field panels monitor and control equipment at specific sites, and communicate performance data to the host system. The field panel replacement work will be coordinated with the installation of the host system, on a building-by-building basis, with an estimated completion by fall, 1999.

Because of the heavy visitation to our buildings, the Smithsonian is especially aware of the need to maintain the safety of elevators and escalators. The Institution conducted an assessment of its elevators and escalators and determined that only a few of the elevators have computerized control systems -- and these have been certified as being Year 2000 compliant. Plans underway to modernize or replace elevators include requirements that any automated control systems be compliant. While not a Year 2000 issue, significant safety upgrades of the escalators throughout the facilities have been underway for about two years. This includes lighting enhancements, remote stop switches, side brushes, and speed monitoring devices, which are designed to reduce the potential for accidental injury.

The Office of Physical Plant is currently implementing a Year 2000 compliant computer aided facilities management system. This system will replace a number of non-compliant data bases used to schedule and track equipment and maintenance tasks, purchase and inventory supplies and materials, and interface with Smithsonian financial systems. Additionally, the Institution has recently purchased a Year 2000 compliant mail management system that will ensure accurate metering and monitoring of outgoing mail.

The Smithsonian's design review process has quality control mechanisms which ensure that any new components installed in its facilities are fully Year 2000 compliant.

With regard to security, the Smithsonian Institution has the responsibility to protect treasures and people in more than 300 buildings in six states, the District of Columbia and Panama. Specifically, requiring protection are: 15 museums and galleries and the National Zoo; 140 million artifacts; 6000 employees and over 6000 volunteers; 8 parking lots on the Mall; 25 museum shops and restaurants; over 1000 special events each year and 25 million visitors each year.

The challenge to the Institution is to maintain a safe and secure environment, while permitting appropriate public access. Of primary concern are: visitors and staff, irreplaceable collections, and property. The record of the Smithsonian with regard to the security of the environment and the collections has been positive. The Institution has maintained an excellent loss record, as measured against our large number of facilities, number of visitors, revenues and assets. As a result of the Institution's excellence in prevention of claims under our insurance policies, the Institution has achieved an exceptionally low insurance rate in comparison to other non-profit educational organizations.

The Smithsonian Institution has a medium size security force, a proprietary electronic security system, access card readers, closed-circuit televisions, equipment for x-raying incoming mail and packages, and access to magnetometer screening for certain events. The electronic system will need to be replaced at some point in time. The security modernization implementation plan includes replacing a portion of the system components, some of which are currently not Y2K compliant, next year. Temporary work-arounds to supplement electronic security for the remaining systems will be used and will be operationally manageable. The planned work-arounds would consist of a combination of increased manpower (numbers of officers, overtime, contract officers), plans to limit access to high-risk areas, and the installation of temporary, portable electronic systems. I am comfortable that the work-around plan will provide the Institution the assurances we need that we will be ready for the Year 2000.

I am pleased to able to report to you today, Mr. Chairman, that the Smithsonian is well prepared to meet the challenges of the automated world of the year 2000. Not only are we confident that the administrative and facilities systems used in support of our educational and public mission will be working well, but we are especially enthusiastic about our efforts to increase electronic access to our collections, to build exciting automated features into our exhibitions, and to continue the creation of attractive, intriguing and educational web sites. All of these things enhance our service to the public in so many valuable ways.

Thank you for this opportunity to update you on our extensive efforts to address the Y2K challenge. I would be pleased to respond to any questions you may have.

QUESTIONS FOR THE SECRETARY OF THE SMITHSONIAN, I. MICHAEL HEYMAN
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
OCTOBER 6, 1998 HEARING
YEAR 2000 COMPUTER PROBLEM

Question 1: Does the Smithsonian have a structured program in place to address the Y2K challenge, such as the model recommended by the General Accounting Office which includes a stage for validations and implementation?

Answer: The Institution has established a Y2K steering committee chaired by the Under Secretary that is responsible for overseeing the identification, implementation, and validation processes necessary to insure that the Smithsonian is Y2K compliant.

Question 2: You mention that your inventory includes facilities that are more than 150 years old; have the ages of the facilities under your control caused any special problems for meeting the Y2K challenge?

Answer: No, we have not found that the older buildings have any more problems in meeting the Y2K challenge. Since most of the older building were last renovated in the 1960s, the systems that involve automated components are comparable to those installed in the buildings constructed in the 1960s and 1970s. Automated building systems monitor and control heating, ventilation, and air conditioning equipment (HVAC); lighting and other electrical equipment; as well as alarms associated with water and sewer services. The Institution is well under way in replacing or upgrading these automated components to be Y2K compliant, and we expect this effort to be complete by the fall of 1999. Only a few of the elevators and escalators in our facilities have computerized control systems, and these have been certified as being Y2K compliant.

Question 3: What contingency plans does the Smithsonian have in place in the event that it does not meet target dates for mission-critical systems or if there are computer problems and systems failures in the year 2000?

Answer: The Institution has developed contingency plans for implementation if upgrades to the automated building control and security systems needed to make them Y2K compliant are not complete by December 31, 1999. Over the past several years, the Smithsonian has conducted a planned replacement of automated building control systems, and expects to complete the work by Fall 1999. If upgrade of the automated building control systems is not completed on schedule, the building systems would have to be started and stopped manually. The Institution will review staffing requirements to meet this need, and reassign current staff or hire more staff to meet the temporary need.

The Smithsonian has a Security Modernization Implementation Plan that includes replacement of the electronic security system that was installed in the late 1970s and early 1980s. Part of the implementation plan includes replacing system components that are not Y2K compliant. In those areas where system components cannot be replaced by December 31, 1999, temporary work-arounds will be used to supplement electronic security. These work-arounds consist of a combination of increased manpower through additional officers, overtime or contract officers; limiting access to high-risk areas; and the installation of temporary, portable electronic systems.

The Institution is confident that these contingency plans will provide the assurances we need that we will be ready for the Year 2000.

Testimony of
Kathleen Hirning, Chief Information Officer
Federal Energy Regulatory Commission
before the
Committee on Transportation and Infrastructure
United States House of Representatives

October 6, 1998

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to appear before you to discuss the Year 2000 effect on oil and natural gas transportation. I want to commend you, Mr. Chairman, and the Committee on Transportation and Infrastructure for holding a hearing on this critical issue. My name is Katie Hirning, and I am Chief Information Officer (CIO) for the Federal Energy Regulatory Commission (Commission or FERC). My responsibilities for information technology include operating and maintaining FERC's internal network and its automated systems, and developing infrastructure needed for electronic filing, workload processing, and information dissemination. I also represent the Commission on the President's Council on Year 2000 Conversion, and as a member of the CIO Council and Small Agency Council.

The President's Council on Year 2000 Conversion (Council) is providing a platform for government and private industry to work collectively to raise awareness and share solutions for Year 2000 (Y2K) problems. We at the Commission are working with the Council to foster outreach and collaboration within the entire energy sector, as well as between the oil and natural gas trade associations.

We will continue to work closely with the Department of Energy, which is working with the Council on Y2K for the electric industry, to share information between electric, oil and natural gas industries on this vital matter. Chairman Hoecker has also informed the governors of all the states regarding this unified effort to assess readiness for the oil and gas industries, in hopes that state governments can join us as necessary and minimize any duplication of effort.

The oil and natural gas industry is complex and made up of a lot of sectors, which must work together to deliver oil and natural gas across the nation. This involves exploration, drilling and production, processing or refining, storage, and delivery via pipelines, ships, rail cars, or trucks. Electronic communications and transactions are a key component. Consequently, the interface with telecommunications is essential. The oil and gas industry also depend on the banking industry to complete sales transactions.

The oil and natural gas industries represent a significant amount of the energy consumed in the United States, including fuel used to generate electricity. There are differences between the industries. For example, crude oil needs to be refined prior to delivery to the end market. Natural gas can move directly, once processed at the well site to remove impurities. Also, oil needs pumps to move it through a pipeline while natural gas is compressed. However, oil and natural gas often occur together in the same well, and many of the processes and equipment used to deliver the product are similar.

The oil and natural gas industries do not consider the Year 2000 problem to be a competitive issue, and due to the integrated nature of these industries, this has facilitated a very cooperative approach within the sector. Oil and natural gas industry associations have joined with the Commission and other federal agencies to work together under the auspices of the Council to raise awareness and assess Year 2000 readiness across the sector. A list of participating federal agencies and industry associations in the oil and gas sector working group is attached.

Oil and gas sector working group activities have included developing and conducting a survey of the oil and gas industries from well head to gas pump. The American Petroleum Institute and Natural Gas Council, which serve as umbrella groups for the working group, compiled and aggregated survey responses, which were presented at a technical conference recently held at FERC on September 18, 1998. Survey results were also posted on a website developed by the oil and gas sector working group, which is part of the Council's website (www.y2k.gov).

Respondents to this survey represent, by volume, about two thirds of oil and gas consumption. While we consider this level of response to be respectable for the initial survey, the oil and gas working group will continue its efforts to have an even higher level of response for future surveys. Over 70 percent of the survey respondents were smaller companies; nonetheless this reflects only a sampling of smaller companies. However, while smaller companies are much more numerous than large ones, collectively they account for only a small volume of oil and gas consumption. While there is an impression from anecdotal information that smaller companies are not paying attention to the Y2K problem, the oil and gas survey results indicate that many are working diligently towards achieving Y2K readiness.

The first survey question asks if company Y2K plans prioritize hardware, software, and embedded systems according to mission critical functions. Eighty five percent of those responding included prioritization in their plan. Over three quarters of the plans include: (1) testing; (2) supply team coordination with other companies, local emergency organizations, local governments, and other organizations that can impact mission critical functions, and (3) include supporting infrastructure such as facilities, emergency response systems, and vehicle fueling. About three quarters of the respondents indicated that all appropriate company people are aware of Y2K issues and their role in assuring readiness, and that they have communicated with business partners, local government, and the public about their Y2K plan and programs.

The survey also asked questions about contingency planning. The industry's first focus is on fixing problems. If a fix cannot be guaranteed, contingency planning begins. Survey results indicate that the industry is in the process of fixing problems, and has begun developing contingency plans, with the primary focus on operations.

Items included in company contingency plans include operations, production, processing, manufacturing, loading, transportation, distribution services for liquids, communications, utility and supporting services, administrative services, human resources, financial, accounting, and billing functions, security and emergency response procedures, and environmental monitoring and control. About a third of the respondents who provided a date indicated that they expect their contingency plans to be ready by the end of this year, three quarters by June 1999, and all by December 1999.

Survey questions also addressed business systems and associated software for administrative functions such as billing, accounting, and so forth. Responses regarding Y2K readiness as of September 1998 addressed: (1) planning an approach and setting up an implementation structure; (2) conducting an inventory of potentially affected systems; (3) assessment through contacting vendors and suppliers; (4) remediation, which includes testing and repairs; and (5) validation, which includes checking that everything works together as well as ensuring that individual components work. Survey results indicate that over half the respondents are either in the assessment or remediation phase, with over a third in remediation.

Survey participants provided similar information on embedded systems, which are found in industry operations that move oil and gas along, processing it and so forth. Survey results indicated that operations lags somewhat behind the software side, largely because companies started working on mainframe and software systems used for business processes as many as five years ago. Consequently, the focus has now shifted to embedded systems that are more prevalent in system operations.

Industry-wide, addressing embedded systems is largely in the assessment and remediation phase, although there are fewer companies in the remediation phase compared to business systems. While only one quarter of respondents who provided a date expected to be in the validation phase by December 1998, three quarters expect to be completed by June 1999, and 100 percent by December 1999. Given 14 months to go, the industry feels comfortable that they will reach the validation phase in time to ensure Y2K readiness. No one can guarantee one hundred percent compliance for every system. While industry representatives acknowledge that there is still a lot of work that remains to be done, the industry in general is working together to finish the job in time.

Industry representatives emphasized that there is a large amount of very detailed data that is behind the numbers reflected in the industry survey results, which give a comprehensive look at industry systems. The industry is generally moving through assessment and remediation, where they are now, towards validation. Succeeding surveys are anticipated to show that the industry as a whole is, in fact, progressing towards Y2K readiness.

Industry representatives also emphasized the value of continued cooperation between industry participants and government. They stressed the need for oil and gas sector participants to take a step towards creating a more formal joint program with both the telecommunications and electric industry, which are crucial components that support the functioning of the sector, and because of the reliance of the electric sector on oil and gas to generate power. The industry also relies on the transportation sector, from rail, to truck, to ship, and are concerned with how this sector is doing. They also expressed a need to reach out to the states and internationally, as the large companies, in particular, are multinational. This is an area where the Commission can facilitate dialog and coordination through the Council and we are taking steps to do so.

The industry associations plan to conduct the next survey in February 1999. Some questions may be modified to better capture the information the group is seeking to assess readiness. The industry representatives emphasized that they plan to continue to share what they have learned with other companies and help the others come along with those who started earlier. As Mr. Quiggins of Shell stated "... as we work together, we don't believe in re-inventing the wheel . . and we do, in fact, use our task force meetings to help the other companies come along. So we share our learning openly and we're going to continue to do that".

We agree with John Koskenin that the survey gives us an important benchmark from which to start, that we are making progress, but we still have a long way to go. It is important to continue to increase the level of cooperation and information sharing, and to be as transparent as we can with the public. We must acknowledge that not every single system will not be ready in time, but we must also inform the public that contingency plans are being made to address these concerns.

John Koskinen reaffirmed the Council's commitment to provide more communication and coordination across sector lines, and to organize joint working group meetings in coordination with the oil and gas sector working group, which he referred to as the Council's best example of a successful working group.

In addition to understanding the aggregated oil and gas industry survey results, the Working Group sought industry-specific evaluations of readiness. Investor-owned local gas distributors were represented at the conference by the American Gas Association (AGA), which represents the end user point of the process. Residential consumption comprises about 25 percent of local gas distribution, while commercial accounts for 15 percent, industrial 44 percent, and electric utilities 16 percent. Survey results from these local gas distributors were very similar to the aggregate results described above.

Most investor-owned local gas distributors are in the later stages of remediation and testing for business software, while many are in the assessment stage for embedded systems. They have found evaluating embedded systems to be very labor intensive due to the shear volume of embedded chips and processors involved in all stages of operations. Supervisory control data acquisition (SCADA) systems are the most prevalent mission-critical systems with embedded systems. Large increases in the validation phase are expected to occur as we move forward. Gaining compliance commitment from vendors and ensuring upstream and downstream business partners' Y2K readiness were cited by AGA as two of the greatest obstacles facing the industry.

The municipal local gas distributors, or public gas systems, were represented at the conference by the American Public Gas Association (APGA). APGA considered the results from the survey as being quite positive in demonstrating that small entities and municipal gas systems are working toward achieving Y2K readiness. The survey results indicated that about 50 percent of the respondents are close to achieving readiness today, and that the remaining are working on their plans, including contingency planning.

According to APGA, many of the smaller municipalities have mechanical and manual equipment and never installed the more sophisticated electronic equipment. This appears to be the underlying reason why so many companies indicated that they have already achieved readiness. Public utilities must also coordinate with the municipality in achieving Y2K readiness, and according to APGA, municipalities are also moving ahead with addressing Y2K issues. APGA, like AGA, expressed a concern regarding third party suppliers.

Interstate natural gas pipelines were represented at the conference by the Interstate Natural Gas Association of America (INGAA). INGAA pointed out that unlike the electric grid, the natural gas distribution and transmission system has some storage built into it. Consequently, as gas is pushed up to market, is compressed, and goes into built-in storage, natural gas transmission is less of a real-time system compared to moving electrons along a transmission line.

Individual plants are located along pipelines that deliver gas from the producing areas. These plants can operate independently, but a distributed control system (SCADA) is required to provide communications in order to operate the system efficiently. So, there are concerns regarding the readiness of the telecommunications sector.

The gas pipelines have a lot of equipment that is mechanical rather than electronic, such as relief valves, springs, and compressors. Natural gas is commonly used to power the engines that compress the gas, and companies maintain auxiliary generation as well. While these systems do not necessarily require electricity to operate, INGAA acknowledges that there are a lot of interdependencies that must be identified. INGAA indicated that the industry has been working hard on the embedded chips associated with operations and has also been involved in some contingency planning. Further, the industry is set up to contend with emergencies such as hurricanes and snowstorms, although they realize that Y2K is a different type of event.

INGAA described the priorities of the gas pipeline industry as: (1) public safety; (2) delivering the product to the customer; (3) correctly accounting for price and delivery of the product; and (4) ensuring that internal business systems such as payroll are functioning properly.

The Gas Industry Standards Board (GISB), which is made up of all segments of the natural gas industry, assured conference participants that the standards that GISB has been creating are Y2K compliant, including electronic standards. Overall, GISB's concern is testing of their standards. Gas marketers, a fairly new segment, are heavily dependent on electronic systems and information systems, and so must be cautious in ensuring that their systems are compliant. However, they do not have some of the manufacturing issues that other segments must address. While gas marketers were not represented directly at the conference, the Petroleum Marketers Association of America is a member of the working group and participated in conducting the survey.

The Independent Petroleum Association of America (IPAA) represents the independent exploration/production companies that operate in 33 states. IPAA's membership tends to include a high percentage of smaller companies. Survey results compiled by IPAA were generally very representative of the overall aggregate survey, where the mid-size and large companies tend to be well on their way in evaluating and correcting Y2K problems. The concern has been with the smaller companies. Many of the smaller independent exploration/production companies have 20 employees or less, so they rely on third party providers for their software. Consequently, they have to work with these third party providers to develop solutions.

On the operations side, the majority of systems are mechanical. Because natural gas in the reservoir is pressurized, it will flow to the surface without any mechanical means. Oil is pressurized to begin with, but additional mechanical means are needed to operate crude oil wells. Oil then requires pumps to move it. These pumps are typically powered by gasoline engines. Natural gas and electricity are also used for pumps in the field. As a result, this segment is also concerned with its interdependency with other sectors. The telecommunications sector is especially critical for mid-sized and large companies that use remote sensing and remote metering.

A representative from Shell commented on the exploration and production portion relative to large companies, which are largely looking at the problem of lost production. So far, they have not found any safety-related difficulties related to potential Y2K failures. There has been widespread information sharing among the large producers. For example, in some areas such as the North Sea, Shell and Exxon have worked together to address Y2K issues affecting a group of off-shore platforms where they expect the complete operation to be compliant by the end of the year.

Large off-shore production wells begin with process control activities that work their way up into a distributed control system. On a platform, all operations can be monitored and controlled from a central spot. Ten different problems were identified and corrected for platforms located in the North Sea. These problems included metering and monitoring systems. This experience gained in the North Sea is now being applied in the Gulf of Mexico and other sites. Consequently, good progress has been made in the large companies' exploration and production activities off-shore.

Telecommunications is vital for off-shore production platforms. Many of the fixes for Y2K involve upgrading telecommunications systems. Because off-shore production platforms are typically subjected to major storms or hurricanes, there is an even greater focus on emergency preparation that there might typically be on-shore.

The oil pipeline industry was represented at the conference by the Association of Oil Pipe Lines (AOPL). Oil pipelines are basically buried tubes that use (1) pumps to generate centrifical force to move oil down the pipeline, and (2) gates, in the form of valves, to let the product in and out of the tube. Pipelines carry crude oil from the field, or from ports if it's being delivered by tanker, to the refinery. Pipelines then carry the refined product from the refinery, or sometimes from ports, to the distribution points for further transportation by truck, barge, or train to the end user. Occasionally deliveries of jet fuel are made directly to airports for further distribution into the airplanes.

According to AOPL, the pipeline companies have been doing extensive work on their operations and SCADA systems. Oil pipelines, like natural gas pipelines, control the flow of oil by using SCADAs. The SCADA communicates remotely with various components on the system. SCADA use embedded processors for monitoring and controlling the pipeline's pumps and valves. Results so far indicate that the vast majority of the embedded processors used for monitoring and controlling of the pipelines do not have date clocks.

The oil pipeline industry has been regulated by the federal government for over 100 years, and in the past oil has been moved by purely mechanical means. Of course these systems have been modified over the years to incorporate some electronics. However, the embedded processors that do not have date clocks are essentially unaffected by Y2K. Most do not have magnetic storage, so any data recording would not be a problem either.

The oil pipeline companies have worked for a number of years on SCADA systems. According to AOPL, most of the equipment has been replaced and/or software has been rewritten. The survey indicated that now, many of the companies are focusing on embedded processors, and are in the process of testing, revising, and replacing embedded processors as necessary. Companies are continuing to work with suppliers.

The current focus by oil pipeline companies is on external systems, especially telecommunications, because of the remote control of their systems, and with electricity because some pipeline pumps are powered by electricity. Almost all pipelines have back-up SCADA systems. Some even have local control systems and many have back-up generation. Many of the embedded processors are relatively low voltage and have battery enhancement that permit them to run even without direct electricity.

Oil pipeline companies have to deal with various natural disasters on a regular basis, including power failures. Consequently, contingency plans are in place and are being reviewed extensively and expanded to try to encompass potential Y2K problems. While AOPL acknowledges that there is still a lot of work to be done, they believe the industry is moving along at the appropriate pace, and fully expect the industry to be ready by the new millennium.

Oil pipelines bring oil to refineries as well as delivering refined products. Oil refineries go through numerous steps to take crude oil and refine it into various products such as gasoline, heating oil, and jet fuel. Refinery equipment includes heat exchangers and large crackers that are automated and controlled by electronics. Embedded systems occur in the process control activities. While these compilers are generally not a problem, date-sampling begins after the data from the instrumentation is compiled. Dates are processed through the refinery. For example, maintenance systems need to know when things were last checked, and if the date is wrong, it can cause the system to shut down.

Oil refineries are generally operated 24 hours a day, so it is difficult to take them off line and test them like you could with a software program. Occasionally a refinery is shut down for extensive routine maintenance. This is when testing for Y2K is done. Oil refineries also have an additional complication due to the number of mergers that are currently taking place as the market place is becoming more competitive. Senior managers turn their focus to corporate restructuring which can cause the Y2K effort to go into a pause mode. This illustrates the point that there can be circumstances that affect Y2K readiness that are not directly related to a mechanical fix or contingency plan.

Natural gas also goes through a processing phase. The Gas Processors Association (GPA) participated in the conference to discuss gas processing and gathering, which is one of the primary stages of getting gas to the consumer. This involves gathering gas from wellheads and processing it into merchantable natural gas to push along pipelines to get the gas from Point A to Point B.

According to AGA, the primary concern of gas processors, gatherers, and small refineries, are the control systems for the facilities due to the extensive number of embedded chips. These chips are used in flow control valves and metering. Problems with embedded chips can create accounting issues, including buying, selling and trading of gas products. Survey results indicate that these companies are generally working on remediation and developing contingency plans.

The success of the Council's oil and gas sector working group technical conference is a clear indication that cooperation and collaboration is actively occurring between the federal government and industry, and intra-industry. Survey results indicate that while there is still much to do, the industry is well on its way to achieving readiness. The Chairman remains committed to supporting the Council and sponsoring the oil and gas sector working group.

Members: Oil and Gas Sector Working Group

Government Members

◊ President's Council on Year 2000
◊ Federal Energy Regulatory Commission
◊ General Services Administration
◊ U.S. Department of Energy
◊ U.S. Department of Interior
◊ U.S. Department of State
◊ U.S. Department of Transportation/OPS

Industry Associations

◊ American Gas Association
◊ American Petroleum Institute
◊ American Public Gas Association
◊ Association of Oil Pipelines of America
◊ Australian Institute of Petroleum
◊ Canadian Association of Petroleum Producers
◊ Canadian Energy Pipeline Association
◊ Defense Energy Support Center
◊ Distributed Power Coalition of America
◊ Gas Industry Standards Board
◊ Gas Processors Association
◊ Gas Research Institute
◊ IEA International Centre for Gas Technology Information
◊ Independent Petroleum Association of America
◊ Interstate Natural Gas Association of America
◊ Interstate Oil and Gas Compact Commission
◊ National Association of Regulatory Utility Commissioners
◊ National Petrochemical & Refiners Association
◊ National Propane Gas Association
◊ National Regulatory Research Institute
◊ Natural Gas Council
◊ Natural Gas Supply Association
◊ Petroleum Marketers Association of America
◊ Petroleum Technology Transfer Council
◊ U.K. Off-shore Oil Association

TESTIMONY OF
THE MINNESOTA DEPARTMENT OF TRANSPORTATION

BEFORE THE
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

THE HONORABLE BUD SHUSTER
CHAIRMAN

REGARDING

MINNESOTA DEPARTMENT OF TRANSPORTATION
YEAR 2000 READINESS

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OCTOBER 6, 1998

Mr. Chairman, thank you for this opportunity to submit testimony regarding the Minnesota Department of Transportation Year 2000 readiness.

Governor Arne H. Carlson has taken an active role in preparing the State of Minnesota for the Year 2000. He will continue to make the resolution of Year 2000 issues a statewide priority for state and local government as well as the private sector.

The Minnesota Department of Transportation (Mn/DOT) began working on Year 2000 issues in 1996. Like most organizations at that time, Mn/DOT focused its efforts on mainframe applications only. After an audit of its progress in November, 1997, Mn/DOT began to widen its scope to include all hardware, package software, custom applications, interfaces and systems with embedded chips or microprocessors.

Mn/DOT's Approach to Year 2000 Issues

Mn/DOT has established a Year 2000 Project Manager to oversee management and execution of a department plan to address Year 2000 issues. The project has senior management sponsorship. Progress reports are held monthly with senior management and quarterly with the State of Minnesota Year 2000 Project Office. In addition, Year 2000 Coordinators have been established for each division of the department to address and resolve potential and specific Year 2000 issues for that portion of the business. Mn/DOT views Year 2000 as a business rather than a technical issue. Our approach to addressing Year 2000 issues is one of business continuation planning. Mn/DOT has identified and prioritized its mission-critical systems. Over the next few months we also will begin to identify mission-critical business processes that must be restored quickly during a disaster or operational disruption. These critical business processes are not technology-related, but may rely on the Year 2000 readiness of entities over which Mn/DOT has no control. The focus of this examination will be to identify dependencies on other external entities, like business partners and suppliers. Findings will be used to identify areas of risk and develop risk abatement strategies and contingency plans.

Mn/DOT's Transportation Infrastructure

Mn/DOT, as part of its Year 2000 assessment, reviewed the following transportation infrastructure areas: Advanced Traffic Management Systems, Advanced Traveler Information Systems, Weather Systems, Traffic Control Devices and High Occupancy Vehicle (HOV) Lanes.

The assessment findings were as follows:

Advanced Traffic Management Systems-Mn/DOT has checked with the vendor and received confirmation that the operating system is compliant. All application code has been modified to use a four-digit date field. Detailed test plans currently are being developed to validate Year 2000 compliance of the system.

Advanced Traveler Information Systems-All of these systems operate in real-time mode and are not date-related. Changeable message signs are manually activated and have no dates involved.

Weather Systems-Mn/DOT has 54 Automated Weather Observation Stations and 102 computer weather terminals located throughout Minnesota. These systems provide accurate up-to-the-minute weather information for pilots, airport operators and others. All systems have been tested and certified as compliant.

Traffic Control Devices-Mn/DOT, over the last two years, has evaluated all of the traffic control devices that it owns or is responsible for maintaining. To better manage our traffic control devices and ensure they are Year 2000 compliant, Mn/DOT uses only three controller manufacturers. Mn/DOT assembles and tests for Year 2000 compliance before the device is installed in the field. Of the 1200 control systems that Mn/DOT maintains, the majority operate on a 100-year clock beginning from a fixed date, such as 1970, ensuring that time-of-day functions operate correctly into the next century. Plans are currently in place to replace older devices and eliminate any controllers that do not have compliance information. Testing of older devices has revealed, however, that they continue to operate past the Year 2000. A conflict monitor is built into all of Mn/DOT's control signals that would activate instantly if there were a problem and cause the device to flash red/red or red/yellow.

High Occupancy Vehicle or Reversible Lane-Mn/DOT's reversible lane is manually operated. Plans are under development to re-design and automate the reversible lane; Year 2000 compliance will be part of the new design.

Areas of Exposure for Mn/DOT

Mn/DOT's greatest exposure appears to be in determining the Year 2000 progress of its suppliers and business partners. For example, Mn/DOT is dependent on electric utilities to provide electricity for traffic control signals; petroleum companies to provide fuel for its snow plows, sand and salt trucks; and telecommunications for its emergency dispatch system. Five potential areas of vulnerability for Mn/DOT are public utilities, trucking industry, railroads, U.S. DOT and cities and counties.

In August, 1998, Mn/DOT sent out a survey to 945 of its most critical suppliers to have them confirm their Year 2000 readiness. To date 70 percent have not responded to the survey. In addition, The Minnesota Department of Public Service surveyed 317 electric, natural gas, telecommunication and pipeline utilities doing business in Minnesota. Fifty percent of the respondents said they did not have a Year 2000 project team in place to examine the effect Year 2000 will have on their company. The Department of Public Service anticipates there could be isolated power outages outside of the Minneapolis-St. Paul metropolitan area. The larger power-generating plants have more built-in redundancy and tend to be owned by larger companies with more resources to resolve Year 2000 issues. Smaller, city-owned utilities do not have the resources to identify and address Year 2000 issues. To date it has not been determined if there are problems with the substations located in smaller communities. Mn/DOT will continue to monitor the work of the Department of Public Service and communicate with the smaller utilities to determine if they have any Year 2000 issues that could adversely affect the state's transportation operation.

The Minnesota trucking industry's Year 2000 readiness is also unclear. The Minnesota Trucking Association is beginning to be aware of the need to inventory and assess its routing and dispatching systems for Year 2000 issues.

A third area of concern is the Year 2000 readiness of railroads. At the Federal level, railroad safety is regulated by the Federal Railroad Administration. Some railroad active warning systems have an electrical connection to a nearby highway traffic signal controller assembly for the purpose of preemption (known as interconnection). Interconnection occurs at crossings where railroad active warning systems and traffic signals are located within 200 feet of each other. Coordination between power companies, traffic signal controllers and railroad grade crossing signals is essential for safe transportation of both trains and the motoring public. In February,1998, Mn/DOT communicated with 22 railroads to determine the status of their Year 2000 efforts; to date, Mn/DOT has received three responses. At this time Mn/DOT is not sure of the direction the Federal Railroad Administration has given the railroads to begin testing equipment for Year 2000 readiness.

The fourth area of concern is the Year 2000 progress of the U.S. Department of Transportation, particularly the Federal Highway Administration (FHWA). Mn/DOT depends on systems within the FHWA for funding and approval of projects.

Finally, Mn/DOT is greatly concerned as to the progress of cities and counties. In August, 1998 Governor Carlson sent out an urgency letter and Year 2000 Readiness Survey to over 9,000 officials of school districts, townships, cities and counties. To date 30 percent have responded to the survey. The majority of the respondents are aware of Year 2000 issues. Over half of the counties that responded have Year 2000 project teams in place but few cities or counties have project plans.

Other Challenges for Mn/DOT

Because of the liability issues associated with the Year 2000, Mn/DOT continually is being challenged to ensure that products and services it purchases are Year 2000 compliant while maintaining quality vendors.

Mn/DOT is finding as time progresses that the Year 2000 issue is filled with complexities and interdependencies. To ensure that we have addressed all of our issues and to help our business partners address theirs in a timely manner, it is essential that organizations are able to share test results and technical fixes. A federal clearing house for this information also would help organizations to expedite their search for this information.

STATEMENT OF
GLORIA JEFF
DEPUTY FEDERAL HIGHWAY ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION

BEFORE THE
HOUSE COMMITTEE OF TRANSPORTATION AND INFRASTRUCTURE

HEARING ON YEAR 2000 PROBLEM

October 6, 1998

Mr. Chairman and Members of the Committee, I am Gloria Jeff, Deputy Administrator, Federal Highway Administration (FHWA). I thank you for the opportunity to testify before this Committee on FHWA's efforts to ensure that State and local highway systems are functional when America enters the Year 2000.

My comments today provide information on:

- The status of FHWA internal activity
- How FHWA is working with partners in the highway industry to make operating systems functional for the new millennium; and
- Our three focus areas -- ITS/Traffic Control Systems, outreach, and resource availability.

FHWA Internal Activity

In the late 1980's the FHWA began modifying its systems to be Year 2000 (Y2K) compliant. At that time the FHWA designed one of its mission critical systems, the Fiscal Management Information System (FMIS), with 4-digit date fields. Since then we have continued our Y2K compliance efforts by looking at other systems to assure that we will be able to continue our work to accomplish our mission without interruption on January 1, 2000, and beyond. In September 1997, the FHWA was recognized by Representative Steve Horn, Chairman of the House Government Reform and Oversight Committee's Government Management, Information, and Technology Subcommittee, as being one of two Federal agencies that began Y2K repair work years early. The FHWA continues to make great headway towards making all FHWA information systems and technology Y2K compliant. All of our mission critical systems have been assessed and modified and are being tested.

Working With Partners

A safe highway system is critical. President Clinton and Secretary Slater have established safety as our number one priority. While the FHWA needed to ensure that its mission critical systems were prepared for the Year 2000, we also recognized the importance of working with our partners who operate the surface transportation system. Working with our partners in government and industry, our goal is that there will be a safe, functional, surface transportation system on January 1, 2000. Based on our efforts to date, we are confident that our surface transportation system will be safe and functional on January 1, 2000.

While continuing to put our own house in order consistent with Vice President Gore's Year 2000 initiative, the FHWA has moved to the next stage of working with others involved in the operational systems of the highway network. The Federal objectives are:

- Provide an operational traffic control system;
- Provide and facilitate technology transfer to address Y2K compliance matters; and
- Provide technical assistance to States and local units of government which are responsible for traffic control systems.

The methods used have included forming new and expanding existing partnerships, using the FHWA and USDOT websites for technology transfer, and using the FHWA division and headquarters personnel, software, and technology to provide technical assistance in three essential areas: (a) Intelligent Transportation Systems (ITS); (b) traffic control systems; and (c) financial and human resource acquisition and implementation to non-federal operators or managers. The FHWA website is "www.fhwa.dot.gov/y2k".

FHWA has worked with the National Associations Working Group for ITS and Public Technology, Inc (PTI) to provide focused outreach to local governments. The National Associations Working Group for ITS is composed of national associations of both state and local officials and transportation service providers with a common interest in understanding the concepts, practices and applications of ITS. The Working Group provides the materials needed to enable a broad range of constituents to make informed, educated decisions about ITS.

PTI was commissioned to prepare a primer, "Running Out of Time: Intelligent Transportation Systems and the Millennium," for State and local officials on the Year 2000 problem. The new ITS Cooperative Deployment Network (www.nawgits.com/icdn.html) has a forum for discussion for Y2K issues as well as case study information.

ITS

FHWA has developed an active Y2K outreach program with an emphasis on ITS. The FHWA led the "One DOT" effort resulting in a one-day National ITS Y2K Summit. The Summit objectives included shifting the focus from Y2K awareness to corrective, collective action. The Summit was held on July 27, 1998. Twenty two major national professional associations and industry organizations agreed to be ITS Y2K partners with USDOT. The partnership responsibilities included co-sponsoring the Summit, taking Y2K suggested actions and relaying important messages to their constituents during 1998 and 1999.

In addition to the 22 partners, the Summit brought together more than 180 State, local and industry leaders to address moving to action for Y2K in a collaborative setting. Some of the partners include - The American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, the American Public Transportation Association, the American Association of Port Authorities, the National Private Truck Council, the National Electrical Manufacturers Association, and ITS America. The Summit participants shared progress reports and information on strategies for taking action to make the Y2K fix for the systems that move people and freight.

As a direct result of information developed by the Summit participants, the brochure entitled "Steps for Action -- Getting Intelligent Transportation Systems Ready for the Year 2000" was produced. The brochure delivers an organizing tool to those who operate the many components of the nation's surface transportation system. The brochure may be used by public officials, at all levels, to map, implement and evaluate Y2K problem-solving activities between now and December 31, 1999. The brochure builds on a paper published by the FHWA earlier this year entitled "Traffic Control Systems in the Year 2000." This is part of a tool kit that is available to address Y2K compliance matters.

The discussion and case studies given at the ITS Y2K Summit motivated several State and local agency representatives to rethink their strategies and remedies. The Y2K Summit partners are committed to making Y2K a top priority program for action by their members during the upcoming year. This includes creating special task forces, and publishing articles in regular as well as special publications.

Traffic Control Systems

Traffic control systems are critical mechanisms for maintaining safe and efficient traffic flow. The systems are present on every highway, road or street in the nation. The FHWA has partnered with State departments of transportation to assess the current equipment, identify corrective actions, and issue guidance and best practices software to the divisions and states.

Many traffic control systems are part of an integrated system of centralized computers, locally operated equipment with embedded chips, and a communication network that may be linked to other systems. This integration of equipment places special emphasis on the assessment and testing of components of the system by State and local authorities to assure proper operation of the system on January 1, 2000. The initial assessments by States have indicated a small number of problems may cause *inefficient* operation of traffic signals if left uncorrected. Actions to address these inefficiencies are being undertaken. The States of Washington and Minnesota have been leaders in this area.

Embedded chips are commonly used in traffic control devices. Our outreach efforts have emphasized the importance of assessing the impact of Y2K on mainframe as well as embedded technology. To date, we have determined that chip failures will not present traffic safety problems. If errors occur, signals will operate properly, but inefficiently.

Another Summit outcome was the identification of the need to facilitate technology transfer by information exchange in sharing successes, frequently asked questions and corresponding answers, and helpful hints on the Y2K issue on our website, "www.fhwa.dot.gov/y2k". A Y2K electronic forum has been established using the FHWA website to link and share information. It allows our partners to exchange information on successful actions. Currently, two case studies on working through Y2K efforts are available. The FHWA also is developing a web-based database so that information on State and local Y2K progress can be more easily stored, categorized, updated and reported.

The FHWA participates in a new "Y2K Action Team," organized by Mort Downey, Deputy Secretary of Transportation. That team is charged with continuing the outreach effort by ensuring that good practices and lessons learned on ITS Y2K progress are quickly shared by all Summit partners and disseminated in an effective manner to owners, operators and industry. The FHWA/USDOT have designed all these efforts to allow for a two-way exchange of information.

Resource Acquisition and Implementation

Because the Summit raised the visibility of Y2K, many of our partners and system operators have raised questions about the use of the Federal-aid program and processes to facilitate State and local government ability to make appropriate and urgent fixes to computer based systems and embedded chips in time for Year 2000. The FHWA plays an important role by working with State and local agencies in providing human and financial resources as they take actions to assess and remediate their Y2K problems. On September 29, 1998, we formally provided our field offices with further guidance on Federal-aid issues related to Y2K computer needs. This guidance addresses eligibility, environmental, project programming, and procurement process issues that can be identified and streamlined to help our field offices facilitate rapid action on the Y2K problem by State and local agencies.

Legitimate modifications to ITS computer systems that enable them to become Y2K compliant are eligible under the Federal-aid program. If a project or activity is eligible for a category of funding under Title 23, United States Code, then Y2K fixes are allowable either as a separate Federal-aid project or as an indirect cost. This includes travel, salary, equipment, and computer (hardware and software) costs that are *necessary and reasonable* and *benefit the activity supported with Federal-aid investment.*

In addition, we have reviewed the environmental, project programming, and procurement processes required under Title 23 to identify where opportunities exist for streamlining the process for Y2K Federal-aid projects. The finding is that actions taken to repair the Y2K problem associated with Intelligent Transportation Systems do not result in any significant environmental impacts. The opportunity exists for the use of categorical exclusion designations and/or simplified conformity procedures so that urgent Y2K repairs can be made quickly. Amendments to the Transportation Improvement Programs (TIP) in metropolitan areas also can be made quickly for individual Y2K actions via this finding as well. We are encouraging our field offices to work with State and metropolitan planning organizations to ensure that a streamlined, coordinated and sustained effort on Y2K remedies can be made throughout a metropolitan area.

We have determined that actions which are primarily concerned with correcting Y2K problems in traffic management systems do not meet the definition of construction in 23 U.S.C. 101. Contracts solely for ITS Y2K corrections would not be considered Federally-funded construction contracts and, therefore, do not need to comply with competitive bidding requirements of 23 CFR 635. Our field offices are working with State and local agencies to streamline the procurement of goods and services that directly relate to assessing and/or fixing any Y2K problems with existing ITS. Further, they are working with our partners to assure that any new hardware and software investments supported with Federal-aid dollars are Year 2000 compliant.

CLOSING

Secretary Slater and Administrator Wykle have emphasized the need to fix the Y2K problem and to maintain the safest transportation systems possible. Under their leadership we will be continuing our efforts to reach out to State and local governments to assure that the Year 2000 transition is as trouble free as possible. I am pleased to note that the Department and the FHWA will be cooperating with the President's Counsel on the Year 2000 Conversion and other Federal agencies in using "Y2K Action Week" (October 19 - 23) to specifically reach out to managers of small and medium sized organizations to help them take action to address the Year 2000 computer problem.

Mr. Downey recently restated Y2K as a DOT priority by saying: "I hope that those who determine how these funds are spent -- State DOT's, metropolitan planning organizations, and our other partners -- will do whatever is necessary to keep their ITS systems operating, and will ensure that the necessary resources are made available." If we can resolve this computer-based and embedded chip problem, we will be far better prepared to handle tomorrow's computer-based surface transportation system of far greater complexity. The FHWA is playing an important role in facilitating the exchange of information and in making sure that Federal-aid programs and processes facilitate the fixes needed so that our investments work as well on January 1, 2000, as they did on December 31, 1999.

Before I close my statement, Mr. Chairman, I would like to take a moment to thank the Members of this Committee for your leadership in addressing this critical issue. I am confident that our continued efforts and cooperation will result in a safe January 1, 2000. I look forward to working with you in the coming months.

Thank you, and I would be pleased to answer any questions you may have.

Testimony of
Dr. Stephen D. Van Beek
Deputy Administrator, Research and Special Programs Administration
U.S. Department of Transportation
Before the
House Transportation and Infrastructure Committee
October 6, 1998

Mr. Chairman and Members of the Committee, thank you for the opportunity to appear before you today to discuss the Year 2000 computer problem. This is an issue that we take very seriously and that we are addressing both within the agency and among the regulated community. Although I will touch upon several of the Research and Special Programs Administration's (RSPA) program areas, my testimony will focus upon RSPA's pipeline safety program.

The Year 2000 problem has the potential to cause serious disruptions in the transportation of oil and gas and other goods and services. Computers and software are used in almost every aspect of the transportation system, including transportation operations and all of the industries that support those operations, such as electric power and telecommunications. Moreover, a significant amount of the infrastructure built in the last thirty years contains "embedded systems" that may not function correctly on January 1, 2000. These embedded systems often are old and the manufacturers are no longer in business, making information on these systems difficult to obtain.

The scope and breadth of the potential problem requires that industry take the lead in identifying, testing, and repairing any computers, software, or embedded systems that may not be Year 2000 compliant. This requires a comprehensive program in which companies examine their own systems to ensure Year 2000 compliance. At the same time, companies must work with their suppliers, customers, and other partners to ensure that they also are Year 2000 compliant.

Although industry must take the lead in identifying and repairing any Year 2000 problems, government must take the lead in ensuring that all parties are working together to address the issues. Government must raise public awareness, coordinate information on potential issues and solutions, and ensure that companies are actively addressing all identified problems. Working with our partners in government and industry, we are doing this in each of our programs where the Year 2000 problem could be an issue.

Pipeline Safety

RSPA's most extensive Year 2000 efforts are in the pipeline safety program. Pipelines have been constructed over several decades with a variety of configurations, components and controls. Embedded processors, installed as long ago as the 1970's and 1980's, are heavily used in many pipeline applications. Many of these processors, as well as many remote sensing devices, relay information to SCADA (Supervisory Control And Data Acquisition) systems, which control pipeline operations. Moreover, SCADA systems often append a date to information received, adding another potential failure point. In the event of failure of SCADA systems, telecommunications, or electricity, operators have contingency plans for manual operations. As operators progress with their Year 2000 assessments, the industry is moving at a fast pace to replace old potentially vulnerable systems with new Year 2000 complaint systems.

RSPA is an active participant on the President's Council on Y2K Conversion Team to address these issues. For example, RSPA has stressed the need for Year 2000 preparedness with a variety of associations, including the American Gas Association, the Interstate Natural Gas Association of America, the American Petroleum Institute, and the National Association of Pipeline Safety Representatives. RSPA has also met with a number of individual pipeline companies (see attachment).

Additionally, RSPA actively participates on the Council's Energy Sector Oil and Gas Workgroup, which is chaired by the Federal Energy Regulatory Commission. This Workgroup is developing a focused, coordinated effort between Federal agencies and industry associations that will prevent redundant efforts and ensure that all companies in the oil and gas sectors are reached. Among other things, we serve as a critical link between state pipeline safety agencies, state utility commissions, and the oil and gas industry. RSPA keeps its state partners informed through periodic mailings and participation in national and regional meetings. For example, RSPA sent an advisory bulletin to industry and our state pipeline safety partners that described the potential impact on pipeline systems, outlined the Work Group's strategy, and identified industry and government contacts for companies needing advice.

Working with the industry, RSPA participated in a comprehensive industry survey to assess company prioritization of mission-critical areas, online testing, "supply chain" coordination, communications, infrastructure support, and contingency planning. This survey, which will be updated quarterly, is our primary means of tracking and monitoring industry Year 2000 progress. The survey is cosponsored by a variety of industry groups, including the American Gas Association, the American Petroleum Institute, the American Public Gas Association, the Association of Oil Pipe Lines, the Gas Industry Standards Board, the Gas Processors Association, the Gas Research Institute, the Independent Petroleum Association of America, the Interstate Natural Gas Association of America, the National Petrochemical & Refiners Association, the National Propane Gas Association, the Natural Gas Council, the Natural Gas Supply Association, the Petroleum Marketers Association of America, and the Petroleum Technology Transfer Council.

Although some concerns remain, RSPA is cautiously optimistic about the results of the survey. Findings were presented at a public meeting held at the Federal Energy Regulatory Commission on September 18, 1998 and are also available on the President's Council webpage. The survey indicates that 31% of responding companies will have contingency plans ready by December 1998, 73% will have contingency plans ready by June 1999, and 100% will have contingency plans ready by December 1999. For embedded systems, 22% of responding companies estimate they will be Y2K ready by December 1998, 76% estimate they will be Y2K ready by June 1999, and 100% of the companies responding estimate they will have embedded systems ready by

December 1999. These results are available on the web page. You will be hearing from industry today in more detail about their activities regarding Y2K.

Other RSPA Programs

Although this hearing focuses upon the liquid and gas pipeline industries, I want to assure the Committee that we are actively addressing the Year 2000 problem in our other programs. For example, RSPA serves on the Emergency Services Sector Working Group of the President's Council. There, we are working with the Federal Emergency Management Agency (FEMA) to examine how the Year 2000 problem could affect our ability to respond to a transportation emergency, such as a hurricane, earthquake, or flood. Among other things, we are looking at the performance of embedded chips in emergency response equipment, such as police, fire, and medical services vehicles. We provided information to the National Emergency Management Association, National Defense Trucking Association, Association of State Dam Safety Officials and the American Society of Industrial Security. We also were able to facilitate outreach to the emergency medical services community and the ambulance industry through DOT's National Highway Traffic Safety Administration.

As a whole, the emergency services community has made Year 2000 compliance a high priority. This September, the Information Technology Committee of the National Emergency Management Association completed a survey of all state emergency management offices and concluded that all are Year 2000 compliant. However, it was indicated that some county and city emergency services offices were compliant could still face Year 2000 problems.

RSPA is also addressing Year 2000 issues in our hazardous materials program. Although most of the issues for hazardous materials are being addressed by the specific modes that carry the hazardous materials, we are working to raise awareness within the hazardous materials community. The Year 2000 issue has been discussed at a number of industry meetings and is addressed on our web page. We also will place information in a number of our brochures and other mailings that are regularly sent to hazardous materials shippers and carriers.

Conclusion

The Year 2000 problem is a serious issue that requires leadership and cooperation between government agencies and the private sector to solve. We are taking the lead in working with industry to identify and assess potential problems and I am optimistic that industry will have the necessary solutions in place in a timely manner. I look forward to working with this Committee and others in the Congress in the months ahead and I will be pleased to answer any questions you may have.

Attachment

January, 1998. OPS discussed Year 2000 issues with the API/OPS Joint Data Team.

March 30, 1998. Participated in API's annual conference on Cybernetics held in Dallas where several discussions took place regarding Year 2000 compliance.

April 15, 1998. OPS provides additional staff to support Year 2000 Conversion Team.

May 1998. RSPA Administrator-Designate Kelley Coyner discussed the Year 2000 problem at the Interstate Natural Gas Association's safety meeting.

May 1, 1998. OPS drafts advisory bulletin to industry about Year 2000. OPS sought contacts within trade associations, identifying contacts in API, APGA, AGA, and INGAA, who had agreed to be the contacts for their respective pipeline modes (hazardous liquid, small natural gas operators, distribution natural gas operators and interstate natural gas transmission operators).

May 14, 1998. OPS discussed Year 2000 strategies with the National Energy Board of Canada and obtained a copy of the survey that their office sent to pipeline companies in Canada, in preparing for our advisory bulletin.

May 15, 1998. OPS volunteered to participate in the proposed President's Council on Year 2000 Conversion Energy Sector Oil and Gas Workgroup.

May 18-22, 1998. OPS staff addressed the National Association of Pipeline State Representatives (NAPSR) Annual Meeting in Breckenridge, CO.

May 18, 1998. RSPA Administrator-Designate Kelley S. Coyner met with the leadership of KN Energy to discuss Year 2000 compliance.

May 27, 1998. OPS sent an e-mail to all NAPSR representatives describing the formation of the new Council Oil and Gas Workgroup asking them for contacts in trade associations that may be willing to participate, and inviting states to participate.

June 5, 1998. OPS participated in the first meeting of the Council Oil and Gas Workgroup.

June 18, 1998. OPS staff and staff from the Office of Emergency Transportation participate on the Year 2000 Council Emergency Services Sector Workgroup, agreed to share information with each other about respective Year 2000 Sector meetings and activities.

June 24, 1998. OPS communicated the minutes of the June 5 Oil and Gas Workgroup to all

NAPSR (National Association of Pipeline Safety Representatives) state pipeline safety chiefs.

July 14, 1998. OPS participated in the second meeting of the Council Oil and Gas Workgroup.

July 15, 1998. OPS sent an advisory bulletin to state offices and the pipeline industry alerting them about the Year 2000 problem, identifying points of contact in OPS and industry, and informing them about the Council Oil and Gas Workgroup effort.

August 4, 1998. Umbrella organizations sent out the initial Oil and Gas Workgroup Year 2000 survey.

August 10, 1998. OPS sent minutes of the July 14 Oil and Gas Workgroup meeting to all NAPSR (National Association of Pipeline Safety Representatives) state pipeline safety chiefs.

August 17, 1998. OPS sent a notice of the upcoming Oil and Gas Workgroup Year 2000 Technical Conference in Washington D.C. to NAPSR state pipeline safety chiefs.

Week of August 24, 1998. OPS discussed Year 2000 strategy with New York state Public Service Commission. NY PSC was advised to use the same survey that had recently been sent out by the Council Oil and Gas workgroup to minimize disruption to those in industry working to fix Year 2000 problems.

August 21, 1998. RSPA Administrator Kelley Coyner met with senior officials from Equilon Pipeline Company to discuss the Year 2000 problem.

September 3, 1998. OPS participated in the third meeting of the Council Oil and Gas Workgroup.

September 18, 1998. OPS attended a Year 2000 Technical Conference at Federal Energy Regulatory Commission sponsored by the Oil and Gas Workgroup umbrella trade associations, where initial results of the first Oil and Gas Workgroup survey were presented.

STATEMENT OF

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BEFORE THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
UNITED STATES HOUSE OF REPRESENTATIVES

OCTOBER 6, 1998

Mr. Chairman and members of the Committee:

I am Anne Wilms, Chief Information Officer of Sonat, Inc. I have 19 years of experience in information technology with over 15 year in the utility industry. Sonat owns interests in 13,852 miles of interstate natural gas pipelines that serve the Southeastern United States and the state of Florida and that transport gas from the offshore continental shelf to the onshore interstate pipeline grid. Sonat also is a large independent producer of oil and natural gas, a wholesale marketer of natural gas and electric power, and owns interests in electric generation capacity in the United States. I am here today representing the Interstate Natural Gas Association of America (INGAA), the trade association that represents substantially all interstate natural gas pipelines in the United States, as well as Canada and Mexico.

I want to report that the interstate natural gas pipeline industry has taken the Year 2000 (Y2K) computer problem seriously, especially as it relates to the critical issue of maintaining pipeline system safety. We are moving forward on correcting systems and developing contingency plans prior to the century change. In addition, INGAA has taken a leadership role in Natural Gas Council's Y2K effort, which represents all segments of the natural gas industry, and has joined forces with the oil industry under the President's Council on Year 2000 Conversion. I also want to point out some areas where I think Congress can help to expedite the effort.

The Natural Gas Pipeline Industry

Before getting into some specifics on Year 2000, I thought it would be useful to describe our industry to the Committee. Natural gas is a major energy source for our economy, second only to petroleum in total energy usage. Natural gas provides 24 percent of the nation's energy, for use in homes, businesses, industrial facilities, and electric power plants. Clean burning natural gas currently fuels about 11 percent of all electric power production in America, but that percentage is expected to grow sharply in the future. Industry experts generally agree that current domestic consumption of 22 Trillion cubic feet (Tcf) will increase over the next decade, with some forecasters projecting demand as high as 30 Tcf.

The natural gas industry can be thought of as consisting of several segments, each of which is regulated differently. Natural gas production takes place throughout North America, primarily in the Gulf of Mexico, the Southwest, northern Appalachia and western Canada. Congress removed the economic regulation of natural gas production a decade ago. From production areas, natural gas moves through small gathering pipelines (regulated, if at all, at the state level) to central collection points. Gas is then placed into interstate (or in some cases, intrastate) transmission pipelines for transport to market areas. The Federal Energy Regulatory Commission (FERC) has economic regulatory authority over interstate transmission pipelines based on their "open access" rules. Pipelines do not own the gas that moves through their systems; rather, customers contract with the pipelines to move gas that they have purchased from producers or marketers. Local gas utilities – what we call local distribution companies or LDCs – are a major customer of pipelines, and are regulated by state governments just like other local utilities. As the Committee members already know, the Department of Transportation oversees the safety of interstate and local gas utility pipelines pursuant to the Pipeline Safety Act of 1968, as amended.

The FERC recently completed a major restructuring of our industry intended to increase competition in the markets for natural gas. The principal component of this restructuring involved changing pipelines from merchant sellers of bundled gas and transportation services to open-access transporters of gas owned by others. This change in our business has forced pipelines to accelerate the application of computer and communications technology to our industry, since the demands for flexible and responsive gas transportation service have increased as our markets have indeed become more competitive. This reliance on computers is one reason why our industry takes the Year 2000 problem so seriously. We want to ensure that our reliable and customer-friendly systems remain so on January 1, 2000.

Surveying the Potential Problem

Although the major pipelines, including Sonat's, that I am familiar with had begun to prepare for the Year 2000 well before this issue began to rise, our trade association, INGAA, undertook in early 1998 to conduct an assessment of pipeline preparedness to determine the need for industry coordination. Toward that end, in March 1998 INGAA conducted a voluntary survey of the INGAA membership to determine the progress of the membership. Seventy-five percent of INGAA members responded to the survey, which represent over 80 percent of the U.S. interstate natural gas transmission capacity. Since the survey was directed to members, it did not include upstream or downstream partners or service providers (e.g. electricity, telecommunications, etc.). All respondents had a Year 2000 plan in place and were in the process of implementing their plan. The survey questions asked respondents to address the following business functions: accounting, purchasing, administration, gas management, operations, engineering, and general services. An analysis of the survey responses concluded that respondents believed that they would complete their own Year 2000 plans, including analysis, modification, implementation, and testing by or before October of 1999.

INGAA then determined that we needed to communicate with other segments of the natural gas industry and described the results of the survey to the Special Senate Committee on the Year 2000 Technology Problem. Concurrently, FERC, under the auspices of the President's Council on Year 2000 Conversion, was also given the responsibility of working with the oil and natural gas industries to develop and share solutions for the Y2K problems. INGAA worked with other natural gas and oil trade associations to develop a survey that would be used by all segments of our industry. The FERC witness, Katie Hirning, has discussed the results of this latest survey in her testimony. For the interstate natural gas pipeline industry this survey complemented INGAA's original survey by asking questions dealing specifically with contingency plans and by providing a common survey across the natural gas industry. At a meeting held at FERC in September, the results of the survey were made public. We also requested FERC's and the Y2K Council's assistance in helping us to reach out to the telecommunications and electric industries. As Ms. Hirning has testified, we will continue to coordinate our efforts and publish quarterly progress reports on our readiness for the year 2000.

Priorities of Interstate Natural Gas Pipelines

Discussions that INGAA has had with its individual member companies revealed a consistent focus in priorities for addressing the problem. In order of importance, these priorities are:

1) Protecting People and Ensuring System Safety
2) Maintaining the Flow of Natural Gas to Markets

3) Accounting for the Flow of Gas
4) Maintaining Internal Business Systems

Public Safety

The first priority for our industry is ensuring public safety. Fortunately, pipeline systems are designed to operate in emergency situations independent from the use of electronic equipment. While modern systems can and do have electronic remote controls, pipelines have an abundance of automatic-analog, pneumatic and mechanical control devices. These safety system redundancies mean that, in an emergency, pipeline valves and machinery can be operated manually. For example, emergency release valves either operate mechanically when certain pressures are reached, or they can be operated by hand using manual or pneumatic systems. The Pipeline Safety Act and the U.S. Department of Transportation define these minimum design, maintenance and operating procedures for our pipelines. Therefore, despite the work ahead, INGAA is confident that pipeline systems will safeguard our people in January of 2000 even if digital device failures occur.

At Sonat, taking the one example I am most familiar with, our Year 2000 team has worked to identify hardware, software applications, and service providers that are potentially susceptible to a Year 2000 problem. As part of our hardware assessment, we are not only looking exhaustively at our computing infrastructure, but also at our pipeline and monitoring control systems and other hardware components within our operation areas. We have categorized electronic devices in our pipeline systems by business criticality and asset type. If the existing electronic device was supplied by a vendor, we have requested certification that the device is Year 2000 compliant. We require new devices to be certified as compliant. Finally, we are performing on-site certification testing of mission critical devices. In addition, we are also developing contingency plans for our systems based on their business criticality.

Getting Natural Gas to Market

INGAA's second priority is continuity of service. Many customers depend heavily on the availability of natural gas. The century date change just so happens to occur during the middle of winter – always the busiest season of the year for the natural gas industry. Again, the primary functional area within a pipeline system to ensure gas deliverability is operations. In many cases, as we verify and upgrade systems to improve safety, the reliability of the gas delivery system increases.

The natural gas delivery system can be differentiated from the electric power grid system by its burgeoning storage capability and distributed control system. The natural gas supply system is dispersed among tens of thousands of individually controlled wells geographically spread throughout the U.S. and Canada. These are backed-up with numerous underground storage sites that can quickly increase or decrease natural gas delivery in the system. Transmission pipelines use natural gas as a backup fuel to self-generate electricity needed for operation and in some cases, operate extensive private communications systems. All of these pipeline systems are designed for reliability during major natural and/or man-made disasters. In many cases, local distribution companies (LDCs) that connect to customers are supplied by several pipeline systems and have their own storage facilities. This system provides outstanding reliability for the customer that has been proven many times in the past.

Based on a risk assessment of installed systems and interdependencies, interstate natural gas pipelines are focusing on two areas of vulnerability to Y2K issues: the distributed control system also known as the Supervisory Control and Data Acquisition (SCADA) System, and the gas compressor stations located along the pipeline system at approximately 100 mile intervals.

The SCADA system is a centralized communication system used to optimize the operation of these individual compressor stations on the pipeline. A failure of this system will result in a decrease of natural gas delivered by the pipeline due to lack of coordination. In other words, gas would continue to flow, but below optimum levels. In some cases, interdependencies with telecommunication providers can cause problems. Alternate computer systems and communication paths permit simulation and testing. Contingency plans include manual operation, private stationary and mobile radio systems and pressure gauges.

Compressor stations are used to compress natural gas and "push" it through the pipeline at approximately 10 to 15 miles per hour. The failure of individual compressor stations to operate does not stop the flow of gas, but will reduce the amount of natural gas delivered by the pipeline. The vast majority of our compressor station controls have semi-automatic or manual backups. However, we do have a few compressor stations that are so sophisticated that they require an extensive effort to operate without the use of local computers. Where these few stations exist, they are receiving first priority for checking and testing. We also have some compressor stations that are powered by electricity. In these circumstances, we are working to coordinate these interdependencies with local electric suppliers to assure priority service. In many cases, the natural gas pipeline system is backed up by underground natural gas storage designed to compensate for losses of supply. The size and location of the storage determines the duration for which loss of supply can be compensated.

Accounting and Billing

The third INGAA priority is maintaining an accurate accounting of gas flows and management. In this area, a significant amount of Year 2000 work has already been completed. Most survey respondents expect to have Year 2000 work in this area, including testing, completed by the first quarter of next year. The present natural gas transmission business system relies heavily on electronic transactions for business activities such as nominations, confirmations, and actual flows. The smooth operation of this system is key to the competitive marketplace that has been created over the last decade.

Internal Business Systems

The last priority is maintaining internal company business systems. These applications are, in most cases, the easiest to analyze and repair, since they tend to involve mainframe and personal computer systems, rather than field-based or embedded controller components. These systems are typically back-office applications for such functions as payroll, purchasing, and e-mail. In many cases, these solutions are dependent on software vendors and the diligence of business partners.

At Sonat, we have identified all software applications and defined their business criticality. Since we are heavily dependent on vendors to ensure that their applications are Year 2000 compliant, we have asked for certification from each vendor on their product. In addition, we are performing certification testing based on defined test criteria for our applications and developing contingency plans.

Where Do We Go From Here?

Now that we have assessed the progress of our Year 2000 efforts, our plan of action is the following. First, we will continue to work on correcting the problems associated with Year 2000 and increasing coordination on the problem areas.

Second, we are reaching out to our customers, service providers and others, to ensure that this is a coordinated effort. As you might expect, many of the potential risks associated with the Year 2000 problem may very well come from parties and systems beyond our control. Our energy delivery system is like a chain, and as the old saying goes, a chain is only as strong as its weakest link.

Finally, INGAA is working with the Natural Gas Council to develop coordinated Year 2000 contingency plans, similar to the contingency plans currently in place that have dealt with many natural or man-made disasters. We look forward to working with our partners in the natural gas industry and our prime interdependency suppliers, the electric power and telecommunication providers to develop a more extensive Year 2000 contingency plan that ensures the smooth operation of the natural gas delivery system.

What Can Congress Do?

Congress can play a role in addressing the Year 2000 problem. Perhaps the most important role is the one this Committee is engaging in today – raising the visibility of the issue and searching for solutions before Year 2000 becomes a serious national crisis. This problem has the potential to do serious harm to our national economy in ways that would affect every American.

We also thank Congress for passing legislation which protects Y2K information gathering and disclosure from legal liability. Companies and industries need to be working together in the short amount of time remaining to deal with the Year 2000 problem. However, the threat of lawsuits has hampered much of this cooperative effort. INGAA knows of examples where natural gas companies have refused to participate in Year 2000 efforts for fear of legal exposure. Clearly this situation is not conducive to the timely repair of Y2K problems.

INGAA supports the legislation which passed the House last week, entitled the "Year 2000 Information and Readiness Disclosure Act (S. 2392). This bipartisan legislation deals with the narrow issues of Y2K information disclosure and the gathering of information by trade associations. It does not shield fraudulent or misleading activities from legal exposure, and it is not a blanket protection from all Y2K lawsuits. It is a way to encourage teamwork in solving this problem.

We also encourage the next Congress to look at the larger issue of legal liability as a result of Year 2000 problems, and whether some reasonable limits can be established. This problem requires a concerted effort and a change in "business as usual." The threat of trillions of dollars in potential lawsuits only impedes the effort necessary to correct what needs to be corrected in the time remaining. In the spirit of cooperation which has led to the enactment of S. 2392, we hope Congress can address these larger legal questions next year.

Conclusion

INGAA thanks the Committee for its leadership on a crucial national economic issue. Our society has grown to depend on instantaneous computing and communications to perform the most important, as well as the most mundane, of tasks. If we all do our jobs right, the general public will wake up on New Years Day 2000 and go about their lives normally, without ever appreciating the amount of effort that has been undertaken to address the Year 2000 problem. The alternative, of course, is what motivates us all to make sure we do a thorough job. I thank the Committee for giving me the opportunity to testify today.

ADDITION TO THE RECORD

For the Record

STATEMENT OF ROBERT H. MILLER
PRESIDENT OF THE
AMERICAN PUBLIC WORKS ASSOCIATION

BEFORE THE
HOUSE TRANSPORTATION & INFRASTRUCTURE COMMITTEE

Tuesday, October 6, 1998

Chairman Schuster and Distinguished Members of the House Transportation & Infrastructure Committee:

My name is Robert Miller, and I am the Director of Public Works for the Village of Schaumburg, Illinois. Today I make this statement as the President of the American Public Works Association (APWA). APWA is the largest membership organization of the nation's local public works agencies and professionals who help to maintain the nation's infrastructure. Our members have the responsibility for applying limited public resources to ensure that the roads and bridges we use every day are maintained and safe. We ensure that the water you drink is clean and safe, the trash and recyclables collected, the landfills maintained – the often invisible, but essential, services that contribute to quality of life in our cities, counties and towns.

First, I want to thank you, Mr. Chairman, for holding this hearing on a subject of critical importance to all communities across the nation. The Year 2000 problem is not just a technical information systems issue -- it is a management issue. The ability of federal, state and local government to continue to provide life sustaining services and maintain the quality of life that our citizens have become accustom is threatened by a simple math problem.

Over the course of the next few days, your committee will complete a series of hearings covering nearly every conceivable type of public works and infrastructure in the United States. Each of these areas is vastly different, but all share the same problem -- resolving this simple math problem before December 31, 1999. While the systems are different, the approach for finding the solutions is the same and the challenges preventing timely resolution are similar.

The approach for public agencies is simple:

- Make a commitment to resolving the Year 2000 problem and providing the resources necessary to make all systems Year 2000 compliant by December 31, 1999.
- Identify all systems containing components which are electrically powered, even if they are battery-powered.
- Identify the mission critical systems that could potentially have a negative affect on the health or safety of our communities and our citizens.
- Determine if any of the components have a microprocessor which processes any form of date-related information.

- Examine all of the systems, beginning with those that are deemed mission critical, to determine what needs to be corrected or replaced.
- Correct or replace all Year 2000 non-compliant components.
- Test the systems and resolve any remaining non-compliant issues.
- Develop an emergency mitigation plan to deal with unforeseen system failures that occur, including failure of systems that were assumed to be compliant.

These steps seem simple, but many public agencies lack the technical ability, resources or leadership necessary to complete these steps before the deadline. Last year, the case of a city in Nebraska was featured in USA Today. The article profiled the City of North Platte's long-term struggle to become Year 2000 compliant. One of the problems cited was the fight to get the attention of elected officials and city management employees. A community activist was successful in finally reaching those individuals, but it was not without considerable effort. Happily, the City of Platte City appears to be well on it's way to surviving the Millenium Bug.

Most public agencies have resolved the Year 2000 compliance issues with their accounting systems and other enterprise-wide systems. However, most public agencies have just started to investigate their embedded systems -- the microchips contained in just about anything that you can imagine. Water treatment and distribution systems; wastewater collection and disposal systems; traffic control systems; electric and gas utility systems; building control systems; security systems; vehicles; test equipment; even heavy construction equipment across the country contain untold millions of embedded microprocessors. Those in critical systems must be identified, corrected if necessary and tested within the next 451 days.

The Year 2000 issue is a management issue. In a recent survey taken at our annual meeting, almost thirteen percent of the respondents -- most public works managers and engineers -- remain somewhat skeptical that a problem actually exists. Some of the respondents' comments, contained on their survey forms, include statements such as "our MIS departments is responsible for compliance," "it's a software problem," "management doesn't think it's a problem," and "it's not my department's responsibility." This survey was taken immediately after Peter de Jager, an internationally recognized Year 2000 expert, delivered a 45 minute presentation about the Year 2000 problem and how it might affect public agencies.

The relative importance that public agencies have placed on this issue may be reflective of the low number of surveys returned. Over 1,200 persons were present for Mr. de Jager's presentation at this general session. However only 167 surveys were returned. Of those returned, over 44% reported that their organization either did not have a Year 2000 implementation program or did not know if one existed. This, despite our attempts to inform our membership since June 1997 when the first of many articles and references to the Year 2000 problem began appearing in our association publications.

Public agencies seem to be one of the last organizations to recognize that the Year 2000 problem extends beyond the data processing environment and can truly affect their ability to continue to provide services to their community.

Organizations that are driven by bottom-line economics, like the banking institutions and private companies, have realized that their economic survival, even their existence, depends on resolving Year 2000 issues for their mission critical systems.

For nearly two years, APWA has been providing information to our members through our publications and at our International Public Works Congress and Exposition. We continue to urge our members to take an active roll in resolving Year 2000 compatibility issues before they affect the communities ability to serve their citizens.

Large and small agencies may have different problems in resolving their Year 2000 compliance issues. Small agencies usually lack the technical experts on their staff to resolve computer related problems, much less embedded system problems. Because of the demand for Y2K experts, they may not even be available to the smaller agencies at any cost. Large agencies may have the technical expertise, but their systems may be so large and unwieldy that they can not identify and test all embedded systems in time to avoid system failures. Most large agencies have already addressed their mainframe and computing needs, but it is the embedded systems that will affect public works the most.

Regardless of the size of agency, documentation systems may not provide reliable information necessary to document regulatory requirements. These database systems may produce faulty information or fail to operate altogether, resulting in the agency being in default of their reporting or permit requirements to regulatory agencies.

Our members can not resolve the Year 2000 compliance problems by themselves. We must obtain adequate resources, both financial and human, to identify and resolve problems before the deadline. This can only happen with the enlightenment and support of the elected officials and professional managers serving local government.

Many of our members work in progressive agencies that have recognized the problem and have committed resources to resolve the compliance problems before December 31, 1999. Unfortunately, not every public agency has leadership that is willing to allocate necessary resources. The Federal Government should do everything in its power to get the message across to elected officials and agency managers that this is a serious problem, with potentially serious health and safety impacts if mission critical systems are not debugged.

The Federal and State Governments should also establish a grace period for regulatory requirements, which can be traced to Year 2000 non-compliant data gathering systems. The fear of monetary violations during these already stressful times could cause some agencies to focus on solving the reporting problems, before they resolve the problems with mission critical systems.

In closing, I would like to leave you with a quote from one of our members, who wrote on their survey "management does not think that the problem is very great. (sic.)" APWA will continue to encourage our members to develop a systematic plan for identifying Year 2000 compliance problems;

correcting these problems; testing the systems prior to the end of 1999; and developing an emergency response plan to deal with a failure in any of their mission critical systems.

Thank you Mr. Chairman for allowing the American Public Works Association to offer our comments and reiterate our commitment to solving this simple math problem.

WATER, COAST GUARD AND MARITIME ISSUES RELATED TO THE YEAR 2000 COMPUTER PROBLEM

WEDNESDAY, OCTOBER 7, 1998

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
WASHINGTON, D.C.

The committee met, pursuant to call, at 10:15 a.m., in Room 2167, Rayburn House Office Building, Hon. Wayne T. Gilchrest presiding.

Mr. GILCHREST. The committee will come to order.

I want to thank everyone for coming this morning, the witnesses, the members. We look forward to this fascinating modern subject of computer chips and what they have done to civilization and the human race. I guess if you are living in some remote area of Southeast Asia, it is not going to affect your day-to-day activities or your trade or your commerce or your education or your safety. It certainly has taken strong, unrelenting grip on the developed countries.

So we hope that we hear some good news this morning about how all of these problems have been resolved. But we want to welcome everyone to discuss the effects of this thing called Y2K, it sounds like a prescription for hair loss, and how it is going to affect the maritime industry. We have representatives from most segments of the industry on our panel today, and we look forward to your testimony.

There are many unexpected problems that may occur because of many Y2K computer glitches, but the one we are most concerned about involves safety, especially safety of life and the environment. I am most interested today in hearing how vessel operators intend to safeguard the lives of their crews and passengers and how they intend to protect the environment from accidental spills of oil or hazardous substances.

I am also interested to hear from the Coast Guard and Maritime Administration on how they intend to address their Y2K computer problems and additional resources they need to fix their problems. Solutions to address their internal administrative problems are important, but it takes a back seat to safety concerns.

Finally, I think that the Coast Guard and the Maritime Administration must begin an aggressive outreach effort, possibly in coordination with the International Maritime Organization, to alert vessel operators worldwide of potential Y2K computer problems. Most of the vessels serving the United States are foreign flag vessels. We must ensure that they are doing what is necessary to prevent Y2K computer problems from causing maritime accidents in U.S. waters.

And we thank the panel for coming this morning. We do look forward to your testimony, and for us to become informed on the issues that you are involved in and how we also can help with those particular problems.

At this point I would like to recognize the gentleman from Tennessee, Mr. Clement.

Mr. CLEMENT. Thank you, Mr. Chairman, for scheduling today's hearing on the Year 2000 computer data problem and the challenges it poses for the Coast Guard and the U.S. maritime industry. I might share with you and others, I have an economic summit every year in my district. I represent Nashville, Tennessee. And this year I had the economic summit on the Y2K problem, computer glitch or computer 2000 problem, however you want to describe it, and I had over 500 people that attended it.

And I do know that Diane Bunch is here, one of those that are going to testify today from Tennessee Valley Authority, and she was one of our participants. And also I had a speaker there, Peter deJager out of Canada, one of the first in the very early 1990s that announced to the world we have got a problem and we have got to solve this problem. I also had Michael Hyatt who wrote the book, if any of you hadn't read it, Millennium Bug. And I might mention to you to read that, because it is outstanding, and naturally he is from my congressional district as well, I might mention.

In the U.S. Coast Guard computers are integral to cutters and aircraft that conduct search-and-rescue missions as well as interdict drugs. In the commercial maritime industry, they provide for safe navigation of ships, control of loading and unloading of ships, and streamline the flow of cargo through our international transportation system. In short, our society has become so dependent upon computers that we cannot function without them.

If our computer systems fail, we won't be pushed back to simply the period before computers, we will be pushed back to the Stone Age, without water and electricity to our homes, cars to drive to work, ships to move our cargo or vessels to catch our fish.

Today's hearing will allow us to help gauge the progress that the Coast Guard and the maritime industry are making towards solving their Y2K problem. It is going to be tremendously expensive for everyone and won't add a nickel to these companies' profit margins, but these computer problems must be fixed.

The committee has been holding a series of these hearings to examine the Y2K problems in our transportation industry. I look forward to hearing from today's witnesses on how these problems will affect the maritime industry and what is being done to solve these problems.

Mr. GILCHREST. Thank you, Mr. Clement.

Mr. Ehlers, any opening comments?

Mr. EHLERS. Thank you, Mr. Chairman. No particular comments on the topic for the day, other than the Y2K, one of my concerns is that we are hearing so much about Y2K at the moment. Even though everyone is interested in and alerted to it, and I think that is important, there is also a saturation factor, and I am a little concerned that, will everyone begin to take this for granted and not pay as much attention to it as it deserves?

On the other hand, you have some people, for example, those I heard about on the news this morning, who are cashing in all of their stocks, taking all their money out of the banks, buying gold, and planning on shortly before the Year 2000 starts going out in the middle of the desert in their campers and waiting a few days, and I think that is an extreme reaction. I don't think that is warranted either.

The purpose of the hearing is to highlight the problems and to come to solutions. And I think that has to be the attitude of the Nation as well, not to regard this as the apocalypse or Armageddon, also not just the way that people often say, "Oh, they will take care of it." Everyone has to be alert to the problem and deal with the problem, but deal with carefully, rationally, thoughtfully, and not panic about it.

Thank you.

Mr. GILCHREST. Thank you, Mr. Ehlers.

Mr. Boswell, no opening remarks?

Mr. BOSWELL. Thank you, Mr. Chairman. I just say this. I appreciate the comments that you, that both of you have made about the importance of this, and I know we are here to deal with this particular part of our needs today.

But I would just say to you, Mr. Chairman, that our insurance industry, and there are so many others out there that we may be waiting on to get to this settlement, because a lot of the payments that go under the HCFA and so on are through that. And I just applaud you for having these hearings and pushing forward, because we have got to move forward on this or we got a dilemma that we can't even imagine. Thank you for your efforts.

Mr. GILCHREST. Thank you, Mr. Boswell.

I would assume that when Mr. Clement held an economic summit in Nashville, from a Maryland perspective that would be mostly country and western singers, but I guess that is—

Mr. CLEMENT. Well, no. But we would be very pleased to have you down there any time.

Mr. GILCHREST. We will have to come down there.

Mr. CLEMENT. Thank you. I don't know whether you like country music.

Mr. GILCHREST. I do. I am an Eddie Arnold fan, Chet Atkins, Buck Owens. "Gettin in the Skillet Lickers" is one of my best.

Mr. CLEMENT. All right, I will remember that.

Mr. GILCHREST. All right. Our panel this morning, we look forward to your testimony, and first up is Rear Admiral Naccara.

TESTIMONY OF REAR ADMIRAL GEORGE N. NACCARA, DIRECTOR, INFORMATION AND TECHNOLOGY, U.S. COAST GUARD; JOHN E. GRAYKOWSKI, DEPUTY MARITIME ADMINISTRATOR FOR INLAND WATERWAYS AND GREAT LAKES, U.S. MARITIME ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION; KATHY J. METCALF, DIRECTOR, MARITIME AFFAIRS, CHAMBER OF SHIPPING OF AMERICA; AND C. JONATHAN BENNER, U.S. GOVERNMENTAL AND LEGAL REPRESENTATIVE, INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS

Admiral NACCARA. Thank you, sir. Good morning, Mr. Chairman, distinguished members of the Committee. I am George Naccara, the Coast Guard's Chief Information Officer. I also have responsibility for the Coast Guard's Y2K project. I want to thank you very much for giving me the opportunity to testify before you today.

I will address four major aspects of the Coast Guard Y2K project: the repair of our own systems, our contingency planning initiatives, our outreach to the maritime industry and boating public, and our Y2K costs.

First, the Coast Guard Y2K program. We are engaged on an internal and external front in dealing with this serious international problem. We are working to ensure our information technology is ready for the millennium. We reported 75 systems as mission critical to the Office of Management and Budget. As of 30 September, the OMB renovation milestone, we have renovated 66 of the 75 systems.

Now, though we are very concerned about the delay in completing renovation work on all of the systems, we remain confident that all but one will be implemented by the final OMB milestone of March 31, 1999. That one system that will take a bit longer to renovate is the Vessel Traffic Service for Prince William Sound in Valdez, Alaska, a major component of which will be replaced at a cost of $1.2 million by summer of 1999. All told, I can say with confidence that all Coast Guard mission critical systems will be ready well before the dawn of the millennium.

On the operational front, we consider our ships and our airframes as integrated operational systems. During 1999, we expect to participate with the Navy in operational evaluations of these platforms. The Coast Guard will be "Semper Paratus," just as our motto states.

My second major point today is our work in preparing contingency plans. We are certain that errors will appear in repaired systems, both during testing and then during actual operations. Independent testing contractors have found up to 10 percent error rates in systems that have been repaired and tested by their owners. For this reason, we have directed our unit commanders and our Headquarters program managers to prepare contingency plans for all systems that are important to the functioning of our units.

To prepare on a national level, the Coast Guard has launched a continuity of operations initiative. We recognize the potential for disruptions across the country, in public infrastructure, among suppliers and business partners, and in the industry we regulate. Therefore, we are convening a national planning meeting in St. Louis tomorrow just for this purpose. By mid-1999, this team will ensure that we have issued planning guidance and an operations order for this operation.

My third point today is a major focus on outreach efforts to our partners and customers in the marine industry. As you may realize, the United States economy is extraordinarily dependent upon maritime shipping. More than 50 percent of the oil consumed in this country comes to us by ship. Ninety-five percent of all the cargo entering the U.S. comes via our ports and over 97 percent of that in foreign ships. Disruptions for even a few days would have a discernible effect on our economy, particularly during the winter heating season.

We should ensure that the ships and the ports are ready. I have and will continue to lead regional Y2K awareness conferences on the East, West, and Gulf Coasts, as well as in the Great Lakes region and on the inland rivers.

We are distributing Y2K awareness brochures to merchant vessels, to shoreside facilities, cargo transfer terminals, and to the recreational boating public. We have information about Y2K on our Web sites, and information on the Global Positioning System rollover is disseminated by our Navigation Information Center. We published a notice on the Y2K problem in the Federal Register, and we have persuaded the International Maritime Organization to issue a circular on Y2K.

In cooperation with other agencies and the Department of Transportation, including MARAD within our "ONE DOT" concept, we will continue these efforts into 1999 with increased emphasis on contingency planning. I would like to emphasize that the Coast Guard will stress aggressive Y2K education and awareness with the maritime industry. By capitalizing on the powerful economic incentives the industry has to avoid delay, we can help ensure they prepare their technology for the millennium. Of course, we can also exercise our broad authority to ensure safety in our ports and on vessels, and we will ensure vessels are safe and seaworthy.

And now the cost of the Y2K efforts. Needless to say, the repair, the contingency planning, and our outreach efforts have brought with them ever-increasing costs. The estimate for overall Coast Guard costs stands at over $35 million, including $10 million already incurred through fiscal year 1998. This is an amount that raises for us the possible need to consider prioritization among operational missions.

I hope that the Committee will work with us in doing all that can be done to ensure the Coast Guard, the maritime industry and the U.S. economy are not significantly disrupted by the Y2K problem beginning just 450 days from today.

Thank you very much for this opportunity, Mr. Chairman. I would be happy to answer any questions you might have.

Mr. GILCHREST. Thank you, Admiral.

Our next witness is Mr. John Graykowski, Acting Deputy Administrator for the U.S. Maritime Administration. Good morning, sir.

Mr. GRAYKOWSKI. Thank you, Mr. Chairman, good to see you again.

It is timely that you hold this hearing on the Y2k issue it is something which affects all aspects of life, as a number of the members have referred to, and none more critically nor more importantly than the maritime industry. As Admiral Naccara stated, we have 450 days between today and the start of the new millennium, which is not a cliche. I don't think we are overreacting, because of the breadth of this problem or potential problem.

I can state to you and the committee categorically that neither MARAD nor the maritime industry generally underestimates the seriousness of this issue. What we have done so far and what we will continue to do each and every day between now and the end of the century will dictate whether we enter that new millennium with confidence or with great concern.

Within MARAD as an agency, we have made great progress to meet the problems presented by Y2K, and we are confident that our internal systems will be ready by the end of next year. We have completed the assessment and renovation of all mission critical application systems in both the headquarters and the field. The validation process has begun, and we will meet the January 31, 1999 deadline set by the Office of Management and Budget.

We have committed, over the previous years and into the next year, a total of $2.7 million to complete the Y2K effort. We have also done a complete assessment of the impact of Y2K on the Ready Reserve force and developed a renovation plan for the fleet. Completion of the RRF renovation is expected by 31 December of this year due to the need to schedule equipment repairs based on the delivery of Y2K compliant components by vendors. We will, however, take advantage of any opportunities to accelerate the schedule wherever possible within the constraints of our budget.

With respect to the maritime industry generally, and I appreciate your remarks, Mr. Chairman, we have taken a very active and proactive leadership role in reaching out to the industry. We have a program within MARAD that has been in existence for some time called the Ship Operations Cooperative Program (SOCP), and that involves most of the elements of the industry, including international maritime organizations. We have placed Y2K at the top of the agenda and the working issues of the SOCP.

We have an Associate Administrator by the name of Jim Zok who has been leading the efforts on Y2K, and we have gone to the industry in a very direct, consistent and persistent manner to tell them that this is in fact a problem, the clock is ticking, and we have to move now.

I would like to note the presence of Kathy Metcalf from the Chamber of Shipping of America, which has really taken up the task and gone to their membership at the next level to make sure that our message is not only being heard but is acted on by the industry. The industry's need to prepare for Y2K as it relates to their own internal systems, just as we faced in the government, is a tremendous challenge for both land-based and vessel-based systems.

Internal systems on the vessels themselves are operated or controlled by computers today; that would be navigation, timekeeping, engine propulsion, communications, cargo operations. Essentially, all aspects of ship operations are now computer dependent. Every automated or semiautomated function will need to be inspected.

Many operators have moved to the unmanned engine room, which is completely dependent on a computer for the safe and efficient operation of the ship. Even something as simple as operating security gates at the ports is dependent on computers.

With respect to external systems, there is the whole financial structure of the companies. You have the Electronic Data Interchange which helps cargo move throughout the world in a seamless intermodal fashion. All that is computer dependent.

Mr. Chairman, I would note that we have spoken with the Port of Baltimore, and that may be of interest to you. They indicate to us that all internal systems will be complete and Y2K compliant by August of this next year, so they are well along as one example of the port industry response to this. But I think that they are emblematic of the whole port industry's attention in regard to this problem.

I would like to also compliment the Congress and thank the Congress for passage of last year's Y2K Information and Disclosure Act. That provided a great breakthrough and removed some of the concerns with respect to information sharing and collaboration. I also note that the Coast Guard and MARAD have worked together in a complementary fashion.

The "ONE DOT" notion that you have heard a lot about is really being brought to bear as a practical means of addressing this problem to a common constituency, namely, the maritime industry. Admiral George Naccara, myself and our agencies work closely to make sure that the message is out there being heard and to work with the industry on common solutions.

In like fashion, international organizations are tied in to the Y2k issue through the Coast Guard and MARAD because there are different levels in the global reach of the maritime industry, all of which must come into compliance in order for the whole system to work.

In conclusion, I want to say that we do recognize the Y2K problem in the maritime industry. We have moved forward aggressively, led by the Secretary and the Deputy Secretary, to resolve it. A lot has been accomplished to date. But we have 450 days, 449 after tonight, and we at MARAD and the Coast Guard and the department are going to wake up every one of those days with the knowledge that we have to make sure that when that day comes, we have the safest, most efficient maritime transportation system.

Thank you.

Mr. GILCHREST. Thank you, Mr. Graykowski.

Our next witness is Ms. Kathy Metcalf, director of Maritime Affairs, Chamber of Shipping of America.

Ms. Metcalf?

Ms. METCALF. Thank you, Mr. Chairman. Good morning, Mr. Chairman, distinguished members of the committee. My name is Kathy Metcalf. I am the Director of Maritime Affairs at the Chamber of Shipping of America. It represents U.S.-based companies which own, operate and/or charter a variety of marine vessels, including tankers, container ships and other types of vessels.

These vessels are engaged both in the domestic and international trade, and as such my testimony would address both of the international and domestic interfaces we think are important here. Likewise, Mr. Chairman, we have submitted a written statement which we would request be entered into the record.

Mr. GILCHREST. Without objection.

Ms. METCALF. Thank you, sir. We do appreciate this opportunity to testify. And, most importantly, we appreciate the recognition of this and other congressional committees that this is an important problem and it is a problem that is only going to be solved by facilitation of active and ongoing dialogue between all the stakeholders. The solution cannot be effected in a vacuum. A microscopic analysis, system-by-system, will result in a bunch of systems that work fine but fail to talk to each other.

Today we are not testifying as information technologists. We are not the people that design the black boxes or build the black boxes. We are the people that use them. And from this perspective, it is these users of these black boxes that need to accept this as a management challenge. It is not a computer problem, it is a management issue. The technical challenge can only be begun after the management process has identified the sources of the problems.

Obviously the marine transportation industry is international in scope, and it involves both onboard and shoreside systems relating to the navigation of vessels, cargo operations, terminal operations, shippers, the land-based transportation network, important waterways infrastructure, and the government systems operated by various agencies, which include the Coast Guard, the Customs Service, Maritime Administration and the FCC.

Also, we need to be concerned about these similar systems in foreign countries. Will our trade or maritime trade be able to operate uninterrupted because another country's custom cannot clear a vessel into its ports? There is an old marketing concept, and that is, before you design any system and send it out for final processing, you need to turn yourself into that piece of paper or that piece of data that will run through the system, and as you run yourself through the system, look at what touches you as you move through it.

The Chamber of Shipping, at the request of our members, Mr. Chairman, have done that process with respect to a single vessel voyage. We have become the ship and processed through the predeparture testing that occurs on the bridge, the lines let go, the process down the transits through the navigational channels to the sea transit to the arrival at the next port, customs clearance, cargo operations, et cetera.

And in doing so, we have found that we have come up with a 4 or 5-page inventory of some pretty important systems. That inventory is just the starting point, however, because the next phase is to look at each of those systems, assess their Y2K failure points and develop the contingency plans.

Mr. Chairman, this has been an active issue on our members' agenda for the last 3 years. We have also participated through the IMO process in discussions there, and as the Admiral mentions, through the efforts of the United States a paper has been proposed where a circular will be issued by the Maritime Safety Committee addressing this issue.

We have also, with our members and others, provided key contacts, not only technical contacts that are the information technologists, but also colleagues in the international maritime industry, so that a "lessons learned" dialogue could be begun.

Marine manufacturers are not to be left out of this process as well, because they are an integral part in solving this problem aboard ships. And as Mr. Graykowski mentioned, we have met with the Maritime Administration. We have also participated initially in the International Trade Sector Working Group, the President's Council on Y2K, and also look forward to the transportation sector meetings.

Finally, we have informally polled our members, and without exception, each have plans in place and underway. Some have completed the assessment phase and are actually in the contingency planning phase, but they are all, without exception, doing something on Y2K.

We are also, the staff in the Chamber of Shipping, working on the preparation of a generic marine transportation contingency plan that will take our inventory of systems and identify potential contingencies, not to eliminate the risk but to mitigate it, to manage the risk.

As a maritime trade association, we believe there is more we can do, and we think coordinating the efforts among our colleagues in the industry with the outreach programs by the government agencies is an excellent start. We think the external interfaces are a key issue here, not only because of their sheer number, but because an entity has no control over the Y2K progress of an entity that is an external interface, whether it be a government agency or a company.

In the case of a business transaction, customers can make business decisions based on the Y2K process, but we don't have that choice with government agencies, and we look forward to working with our colleagues in the government agencies to address this problem. We are also pleased to work with your committee, the President's Council, and any other interagency groups where you think we may be of value.

Again, we consider this a management issue, not a computer issue. And it is not the responsibility of the IT folks to solve this, but rather those of us which own, operate and manage vessels on a day-to-day basis.

Thank you for the opportunity to provide testimony, I would be happy to answer any questions.

Mr. GILCHREST. Thank you, Ms. Metcalf.

Our next witness is Mr. Jonathan Benner, U.S. Governmental and Legal Representative, Interdependent Tanker Owners, INTERTANKO. Welcome, Mr. Benner.

Mr. BENNER. Thank you very much, Mr. Chairman, and members of the committee. INTERTANKO, as you know, has appeared before this committee on a number of safety issues recently, and we very much appreciate your focusing on this particular development. It is a daunting task, for reasons that have already been stated, to try to ensure that this does not result in a major threat to marine safety and the environment. But a great part of the preparation for Year 2000 is information and communication, and this is part of that process.

INTERTANKO consists of approximately 300 independent tanker owners. These are the owners who are not owned by governments or by oil companies. That portion of the tanker fleet has grown over the past few years, and right now we estimate that more than two-thirds of all the imported oil coming into the United States is carried on INTERTANKO ships.

There are approximately 2,000 tankers in the INTERTANKO fleet, so this is a very substantial portion of the international fleet. Our members come from over 40 nations, including the United States, and there is a considerable overlap between some of our members and some of Ms. Metcalf's members. Much of what she has said applies to INTERTANKO's approach to this problem.

We have submitted a written statement. I ask that it be included in the record of the proceedings, and I will summarize that statement.

Mr. GILCHREST. Without objection.

Mr. BENNER. I will focus on onboard issues, but it should always be understood that like any other commercial concern or company, tanker owners have the very same problems internally in the shoreside operations that are by posed Y2K to any other company. But we have made great safety strides in the tanker community in the past 15 years. We are proud of how far we have come, we are proud of the effort we have put into it, and we have to treat this particular Y2k issue as a threat to that progress.

We can't tell you with any certainty what is going to happen. We can't even tell you whether this threat is as dire as some people have painted it, but we do know that we have to treat it as if it were. The potential is there. As responsible operators, we just simply have to go through the process of trying to do our very best to ferret out the sources of the problem, identify them and remove them.

We don't have any magic solutions to the problem. A lot of people in this country and overseas wish they did, but one of the ironies here is that it is a very high-tech problem and the solutions require a very low-tech application. This requires sheer doggedness in getting an inventory of the systems that are involved and, as Ms. Metcalf said, trying to make sure you understand the links to other systems, because if you get your head down too much inside one vessel or one company or one fleet and you miss the external links, all your work is for naught.

But the process is going on. We are trying to find where the vulnerabilities are. There is no one answer to this. Ships vary a great deal in terms of their degree of dependence on computer and microprocessor technology. It depends on the size, the age, the type of vessel, so you can't impose one solution on every owner and every fleet. You just have to walk through from the ship to the company to the links with other owners.

We can identify areas about which we are concerned. Some of them have already been mentioned: navigation systems, the telecommunications systems between ship and shore within the company itself, the real time propulsion controls in the engine room, cargo monitoring. That kind of thing has already been mentioned, I believe, by Mr. Graykowski.

We are going more and more to fairly sophisticated systems for monitoring engine performance and other systems performance. The more sophisticated those are, the more vulnerable they are to this type of problem. Alarm systems, strength and stability monitors, those are the things that we are looking at very closely.

A lot of what we are doing, I confess, consists of just changing out the systems. Where we identify potential vulnerability, even if the software, the hardware, the equipment is potentially useful in every other respect, we are simply replacing that with equipment that we know to be Y2K compliant. So there is an enormous cost involved in that for the vessel owner. It just has to be done. That seems to be the approach that has to be used.

As mentioned before, we are concerned about links to such systems as navigational aids and loading monitors. We are concerned we can have a vessel that is totally Y2K compliant and it won't be able to operate at a terminal because there is a problem in the terminal interface. Again, this is the thinking that has to go into how we get through this.

How do we solve this? We communicate. We just have to communicate. We have to get our own house in order, and we have to be in touch with other organizations. The United States Government has provided a clearinghouse for that in many ways through the efforts of organizations like the Coast Guard and MARAD, and that is extremely helpful.

Another concern that we have, and this may be where the big crisis is awaiting us, is in the liability regimes that attach to possible outcomes from Y2K problems. The maritime industry, as you know, has developed over centuries peculiar and useful liability regimes, limits on liability, and insurance structures that meet the specific needs of operating in this environment. All of these traditional modes of protecting ourselves commercially seem to be stressed by the possibility of major damage caused by Y2K.

We have to watch those costs. And we realize that this is a problem, and it has to just be addressed at all levels, not just in the technical field, again, as has been said earlier, but in the institutional field in providing ways of dealing with possible economic outcomes.

I would be happy to answer any questions you may have about this testimony.

Mr. GILCHREST. Thank you, Mr. Benner.

You mentioned that all of your ships could be fixed within the next year, year and a half, but they could come up to a terminal or a port that had still had not come up to solve their Y2K problems and then you would have a problem.

Are there any terminals or ports in the United States or around the world that you may have a suspicion that they are not coming up to speed on this quickly enough?

Mr. BENNER. I certainly can't name any at this time, and I don't want that to be misunderstood. In other words, we are not indicating that we suspect that the terminal industry or the port industry is behind the vessel industry. We are fairly confident that everybody is concerned about this problem, is working as hard as they can to solve it.

I use that as an example only to indicate that if there is a problem or a disparity at the links between the vessel and the terminal or the vessel and the navigation system, all the good work that has gone on on the other side may be for naught, and this is a problem that exists independent of Y2K.

INTERTANKO spent a lot of time before this committee and others lately trying to make sure that we are upgrading our navigation and infrastructure systems. The whole marine transportation system is only as good as its weakest link, and that is really the point we are trying to make there, not that there are specific areas we are concerned with.

Mr. GILCHREST. Would anybody on the panel recommend to this committee or to the Maritime Administration that there may be some areas that need some extra assistance? Admiral?

Admiral NACCARA. Mr. Chairman, that is a good question, which we have tried to reconcile with the ports around the country. We have an ongoing port assessment effort through all of our capital ports, and they are trying to determine how ready the ports are. As Mr. Graykowski mentioned, Baltimore expects to be prepared by August of '99; that is probably out of the ordinary from what we have seen thus far.

Mr. GILCHREST. You are saying that is out of the ordinary?

Admiral NACCARA. Yes.

Mr. GILCHREST. In what way?

Admiral NACCARA. I think that they are probably ahead of many of the ports.

Mr. GILCHREST. I was going to say August of '99 just seems to be skating on fairly thin ice.

Admiral NACCARA. Yes, sir. We have worked with Hampton Roads recently, and they have a team established in their Port Safety Committee, for example, which is focusing on all of the elements of the ports. And they discovered, for example, in a cargo crane about 200 different embedded chips have to be replaced or repaired, and that was just one system.

So they are coming to grips with the magnitude of the problem, and I think in fact we suggested to them to establish a Web site for that port, to share it with other U.S. ports and foreign ports. They or Baltimore could perhaps become a symbol of the right way to go about that problem.

Mr. GILCHREST. So if Baltimore is August of—Baltimore is ahead of most other ports in the country, or they are the lead?

Mr. GRAYKOWSKI. Mr. Chairman, we just picked Baltimore as a port we wanted to check with.

Mr. GILCHREST. I don't know why you picked Baltimore.

Mr. GRAYKOWSKI. I like that port, but—

Mr. GILCHREST. It is Helen Bentley.

Mr. GRAYKOWSKI. I think we have to probably survey the AAPA. In fact, they are meeting this week, and I am wondering whether Y2K is on their agenda. The reason—

Mr. GILCHREST. Who is meeting this week?

Mr. GRAYKOWSKI. The American Association of Port Authorities annual meeting is right now.

Mr. GILCHREST. Where are they meeting?

Mr. GRAYKOWSKI. Houston.

Mr. GILCHREST. And this is on their agenda?

Mr. GRAYKOWSKI. It is.

Mr. GILCHREST. It is.

Mr. GRAYKOWSKI. Ms. Metcalf indicates that it is. The August '99 date for Baltimore you mentioned is skating on thin ice. I see that as a good indication that they are on top of it, because it is not just that the systems will be bought or in place, I am also informed that they will be fully validated and operational by August '99. So they are on track, but like with everything, it is a function of budget, procurement, things like that.

Mr. GILCHREST. So is there a fairly free flow of communication, let's say between INTERTANKO, Ms. Metcalf, your Chamber of Shipping, the Maritime Administration, and the Coast Guard, with all of the interested parties, which I would assume includes national, international shipping, the whole intermodal system, so that all of the links to the Y2K problem that deal with the maritime industry, both national and international, are being worked through?

Admiral NACCARA. I think there is an international effort, Mr. Chairman, to sensitize all involved in the industry with respect to Y2K. Recently the Protection and Indemnity clubs, P&I clubs, insurance underwriters for the maritime industry, held a series of six meetings around the world, and they represent the great majority of all the vessel owners in the world. And they have provided a tool kit, for example, to every vessel, every master on every vessel, to use to analyze their problem. They are very concerned about the problem, and they say it may even affect the insurance rates if people do not comply or do not attempt to comply.

Mr. GILCHREST. So the liability issue, if an individual or a ship or a port complies and completes their Y2K solution, then the liability issue shouldn't affect them?

Admiral NACCARA. A difficult question.

Mr. BENNER. It should not. The problem we have is not in the situations where we get a complete fix within a company. The problem we are concerned about is where something has been missed. The nature of this problem, because of its layers of interlinks and the imbedded nature of some of these processors, almost dictates that we are going to miss some things. It is going to happen.

Now, it may be totally unnoticeable when that happens, it may have some fairly drastic results, but what we are concerned about are those areas where we have missed something. We just have to be as thorough as possible. And that is where the liability and the insurance issues are going to arise, and it is very hard to speak hypothetically, looking forward now, about how that is going to sort out.

Mr. GRAYKOWSKI. Mr. Chairman, if I can add two things.

Mr. GILCHREST. Yes.

Mr. GRAYKOWSKI. One, these two organizations represent not only the majority of tonnage but the top tier maritime companies and organizations throughout the world, certainly INTERTANKO and the Chamber on the domestic side. There are a substantial number of ship owners, however, that don't belong to these organizations and that are running less than first class, if you will, tonnage, and, again, the question for them is 'am I going to spend the money on a 25-year old ship that I am only going to keep for a limited period of time'so that calculation is going to be a factor.

And on the liability side, Protection and Indemnity, P&I clubs, are providing that incentive. As I understand, they are going to write exclusions in the policy so that if you are not Y2K compliant and there is an accident which is attributed to lack of compliance, then there will be a problem gaining insurance coverage. I think that is a good move by the P&I clubs because the top-tier operators cannot operate without protection and indemnity insurance.

Mr. GILCHREST. If a ship coming in—this is my last question, and I will go to Mr. Clement—if a ship is coming, let's say, that it is evident that they haven't fixed their computers, and I don't know anything about computers so I don't know what is going to happen, would or could the Coast Guard stop them from coming into a port?

Admiral NACCARA. Absolutely, Mr. Chairman. We have broad Captain of the Port authorities. And typically, we would perform certain drills and exercises before the vessel enters port or immediately upon entering our waters. Now, we will alert all of our ports and our inspectors to that particular issue for next year.

Mr. GILCHREST. Thank you.

Mr. Clement?

Mr. CLEMENT. Admiral, what Y2K problems in the Coast Guard won't be fixed by January 1, 2000, and what problems will this create for the Coast Guard?

Admiral NACCARA. Sir, I think that we have done all that is possible within our budgetary constraints to this point in identifying the Y2K impacts on our systems. I have no doubt there will be failures due to external interfaces, due to imbedded chips, and I am very concerned about the foreign flag vessels that enter our ports which are generally beyond our control. Seven thousand five hundred to 8,000 foreign flag vessels enter our ports each year. We don't have any control, essentially, until they come into our waters.

Our external interfaces--we have literally thousands of them which affect our logistics and our supply and support functions in the Coast Guard. We have written letters to virtually all of our external interfaces, all of our suppliers. Perhaps 20 percent responded, and that is a serious cause for concern.

As part of our contingency plan, we must consider those types of failures in the chain of support. That may mean we have to increase inventories. That may mean we have to preposition people in certain areas, in certain critical ports, and so forth. Those issues will all be taken into account as we work through our planning process.

The imbedded chips are a very troublesome issue. We are trying to come to grips with the magnitude of that problem. Quite frankly, it is ironic that all our older platforms and older telecommunications systems are not quite as affected by the Y2K problem issue. Nevertheless, we are focusing on our platforms to ensure that they will still be operational.

Mr. CLEMENT. To follow up on what you just said, what systems on commercial ships can pose a threat to the safety of our waterways if Y2K problems on board these vessels are not fixed adequately?

Admiral NACCARA. Of particular concern, sir, would be the navigation systems on the bridge and the main propulsion systems, and we will focus on those. We have authority to require on-site testing of those systems.

We have not—one last point, sir—we have not taken any definitive regulatory or legislative action, nor do we seek that at this point. The approach is to make the vessel owners and operators aware of the problem, to educate them on that problem, and we feel we do have that authority already if we need it to ensure safety in the port.

Mr. CLEMENT. Well, Admiral, how does the Coast Guard define mission critical systems? For example, are telephone systems, secure communications systems, power sources and heating systems mission critical?

Admiral NACCARA. Many of those are, sir, particularly, the communications systems. We tried to use the OMB broad definition. Quite frankly, it was 75 mission critical systems back a year and a half ago. If you were to ask me that question today, I would say perhaps 500 mission critical systems, all of which are absolutely necessary for the Coast Guard to perform our missions. We have a master list which is more than 600 systems. We are paying equal attention to those systems, also.

Mr. CLEMENT. Mr. Graykowski, to what extent are Y2K problems in our intermodal transportation system being examined as a system, and is any one looking at every stage of transport from point of origin to point of destination to determine where problems will occur?

Mr. GRAYKOWSKI. Yeah. That is—you have raised a very good question, Mr. Clement. I think each of the individual industries are addressing it in various ways. This would be rail, trucking, and we have discussed the ports and maritime. Additionally, you have the OMB and John Koskinen effort which is trying to poll all segments of the industry.

I think, frankly, based on a senior staff meeting we had with the Secretary of Transportation a week ago, his message to all of us—he is going to be speaking, I think it is at ACTI, very soon, and Gordon Litton is going to be there on the transit side--is that in DOT we know what we have to do. I think it is exactly what you are getting at, and that is tying the entire system together.

I would have to say I am not aware of that type of coordinated effort on an intermodal level. But you raise a perfect issue and point, that I think we need to do that too. Again, make sure all the pieces fit together, just as they do in the brick and mortar side or concrete side. We have to make sure these systems interface. The electronic data interchange which I have spoken about which allows us to track cargo all the way, isn't going to work unless all the pieces are working together.

Mr. CLEMENT. Well, Mr. Graykowski, are all U.S.-flag vessel owners in our international trade going to be Y2K compliant by January 1, 2000?

Mr. GRAYKOWSKI. I don't think they can afford not to be, frankly. And given the fact that you have got this organization with Ms. Metcalf and INTERTANKO which are absolutely good leaders, big leaders in the industry, I think they are going to get there.

Mr. CLEMENT. What about the foreign flag vessels?

Mr. GRAYKOWSKI.There are international organizations. The Baltic and International Maritime Council (BIMCO), I referred to, has a considerable amount of foreign tonnage under its auspices as an association, and they pride themselves on quality. They moved forward on the International Safety Management (ISM) Code standards of training and certification and watch keeping, saying that we have to have quality as number one.

But, Mr. Clement, there are always going to be a certain percentage of operators out there that don't have the same regard for safety, don't make the same investment in new equipment, and they are going to run their ship until the last possible day that that ship can possibly float and carry cargo. I suspect those folks are not going to make the investment or take the effort.

Mr. CLEMENT. Well, should we deny entry to U.S. ports to those ships?

Mr. GRAYKOWSKI. I think Admiral Naccara can best answer that. But he stated emphatically we have the authority to do that if indeed it becomes required. This is a safety issue, and you are the expert in that area George.

Admiral NACCARA. As I said, sir, we do have that option. It is a very serious point of debate, and we discussed it internationally at IMO. Some other flag nations around the world are taking such actions. They want to see the evidence of compliance. It is a very difficult issue to enforce, in my mind, to have inspectors come aboard perhaps they will have a piece of paper that says that piece of equipment is compliant, yet you cannot put great faith in that.

Testing does not always reveal a problem. Actual operation, as I mentioned before, 10 to 20 percent of the time has revealed problems despite all testing, despite all documentation. So we are facing a very serious problem. If these vessels under our port state control program have been highlighted as problem vessels, perhaps we will require additional tests for them. We may do that, sir.

Mr. CLEMENT. Ms. Metcalf and Mr. Benner, what are P&I clubs doing with respect to Y2K problems, and what is their liability for accidents resulting from Y2K problems?

Mr. BENNER. As was mentioned earlier by Mr. Graykowski and Admiral Naccara, the P&I clubs have been a fairly strong leader in disseminating information and sensitizing people to the need to address this. A couple of them have been very active contributors to Web sites that are very carefully watched on this issue right now. Obviously, they have a very important financial stake in this being resolved properly.

We, our members, watch our clubs very carefully because it is an issue of coverage, and nobody can operate in this environment without adequate insurance coverage. And we are getting signals, very strong signals that our insurers expect our members to do everything they can to resolve the problems. So they have been, like MARAD, like the Coast Guard, they have been out there pushing us, sensitizing us to get the problem resolved.

And, Mr. Clement, while I have the floor for a moment, I wanted to go back to this foreign flag-U.S. flag issue, I think we will miss the issue if we start thinking of it in those terms. I think this is a responsible operator versus nonresponsible operator issue. And within our organization, we have vessels from a number of different flag states, including the United States, and I have not detected any differentiation in dedication to the resolving this between flags. That tends to be the case with most safety issues right now. So the trick is to make sure that that atmosphere is maintained there.

Mr. CLEMENT. Will insurers cover accidents from Y2K problems, since it is not considered to be an unavoidable or unpreventable fault?

Mr. BENNER. Well, again, it will depend on the circumstances, but I think that companies that are not conducting effective Y2K programs will pay for their lapses out of their own pockets. I think that is what is generally going to happen here.

And I think the real issue is where you get good faith efforts to comply and yet you have a problem. That is what we don't know the answer to. But I think insurers are sending very strong signals they will not provide coverage for people who are negligent in their approach to solving this problem.

Ms. METCALF. Mr. Clement, one other liability issue that we have identified, and takes it a little narrower than the P&I clubs, and that is relative to specific pieces of equipment. And as you are acutely aware, Congress has taken some action recently to try and promote the exchange of information on Y2K issues related to particular pieces of equipment or systems.

But there is an issue out there and we have received mixed responses, not only from our members but from our international colleagues, BIMCO, the International Chamber of Shipping, as to the ability or the desire of other entities that supply equipment to vessels, to provide Y2K advice on particular pieces of equipment. And their concern, as related, is not only to the liability for providing advice that may not later work, but also general warranty issues relative to the performance of the equipment. I just bring that up as another tier of liability.

Mr. CLEMENT. What Y2K problems have you identified at our port facilities where you discharge cargo and unload petroleum?

Ms. METCALF. As far as cargo operations, particularly relative to petroleum products, you have a lot of automatic systems. I hate to say this, but in the days when men were men and boys were boys, and I found myself stepping on the deck of a ship, standing a deck watch, those were the old days where you could actually see the stuff come up in the tanks, where you didn't particularly sit in the cargo control room, you were out there on the deck topping tanks off, likewise on the bridge of a ship.

There are still engineers down in the engine room versus automated control on the bridge. That is not to say there are not folks down there, but they are down there for particular purposes rather than to just stare at dials.

In the cargo operations respect, there are a lot of automated cargo operations relative to valve opening and closing, tank gauging and monitoring equipment, and uniquely enough we think of this problem as a software systems problem. But there are a lot of systems out there that aren't really these big computer systems, they are little pieces of equipment with one imbedded chip that can fail.

And the point I bring is, that tank monitoring device for oxygen and explosive limits, they can have one chip in them, and they need to be Y2K tested or they are going to get a faulty response, and that is also as miniature as our members are getting, looking at systems. Sure, there are systems out there, shore tank gauging systems, flow monitoring systems throughout refineries and terminal operations, and you can take that all the way down to the distribution line through the refineries into the terminals, into the tank trucks and the rail cars as well.

Mr. GRAYKOWSKI. I just participated in the christening of three brand-new tankers down in Newport News for the Hvide Marine Corporation. You would be amazed at how large the ship is, and how few people are needed to operate it. And just as Ms. Metcalf said, it is worth your while to visit, and Mr. Gilchrest could arrange this at the Port of Baltimore. Everything the ship is doing, for instance, keeping it trimmed and stable as you are discharging the tanks, tank overfill, all of that is run by a bunch of computers and indicator lights, opening and closing valves, and maybe two people watching the whole operation. Very serious things could happen very quickly if one chip fails.

Ms. METCALF. Sir, I didn't want to prolong this, sir, but the one thing I would say, and I think the Admiral will support me on this, is we are very much in touch with the human element. It is a very broad-brushed Coast Guard program in the way we are approaching this, agreeing with Mr. Graykowski.

But also I think he just identified a solution to the Y2K problem, and that is, we still have human beings on board those vessels and those human beings are the prime decision-makers on those ships. All the electronics and all the chips and all the software systems are simply tools to help them be more efficient in what they do.

Therefore, one of the solutions or probably the most important solution to the Y2K problem is to identify the fact that we still have human beings on there, and that the backup system for some of these computer outputs is the human being watching or looking, evaluating the situation and being there ready if a chip fails at 1/1/00 or 9/9/99 or the myriad of other dates that have been identified.

Mr. CLEMENT. Thank you.

Mr. GILCHREST. Thank you, Mr. Clement.

I just have a couple of real quick questions, because I know the next panel is up. Mr. Horn is going to chair the next, I think, the next panel.

Ms. Metcalf, you made a comment in your testimony about going through the whole process, from the time you release the ropes on the ship to the time you reach the next port, to try to assess what needed to be done. Based on that analysis, do you have any or does anyone have any idea as to what the weakest link in this whole scenario is likely to be?

And I understand, Ms. Metcalf, I think you stated very well that the strength of this is it being managed properly, and realizing that you have human beings on these ships that will deal with any small little chip that happens to fail, and how they react to it. But is there any idea as to the weakest link in this whole thing?

Ms. METCALF. Mr. Chairman, I think the weakest link in the system is not on board a ship or within a terminal or within a government agency. I think the weakest link in a system is making sure that we have built the spiderweb we need to build so that everybody is making sure that the process will flow; and that, again, we can't walk across the street and eliminate the risk of that, but to manage the risk in a manner much like we do every day when we operate vessels or do our daily activities.

Mr. GILCHREST. Thank you.

Admiral, or Mr. Graykowski, is there a consensus? Has this been, in your opinion, thoroughly aired at the IMO so that the international maritime community is really collectively together on this thing?

Admiral NACCARA. I think it has been aired satisfactorily to this point, sir. I think we have an ongoing effort at the other committee and subcommittee meetings to continually discuss it, so as to touch different elements of the industry. It should be addressed constantly. It is still the awareness education approach at IMO, similar to our approach here, and over time it will be adequate, yes, sir.

Mr. GILCHREST. Thank you very much.

We appreciate you coming here this morning. Admiral, Mr. Graykowski, Ms. Metcalf, Mr. Benner, your testimony has been very helpful. And I would hope that as the weeks progress, that some of us will have some more questions for each of you, and we would like to communicate them to you.

Thank you very much for coming. This part of the hearing is over, and I guess I am not going to pound the gavel yet, because Mr. Horn is going to come up and introduce the next panel.

Mr. HORN. [Presiding.] The second panel joining us—why don't we just go in the order on the agenda?

Mr. Alvin Pesachowitz, Chief Information Officer, Environmental Protection Agency. I think you are accompanied by Michael Quigley and Stephen Clark. Are they right behind you?

And if you proceed, we will just go down the line.

As you know the routine here, your statements are automatically put in the record the minute you are introduced. We would like you to limit them to 5 minutes or so in terms of a summary. That gives the members and you greater chance for dialogue of questions.

TESTIMONY OF ALVIN M. PESACHOWITZ, CHIEF INFORMATION OFFICER, U.S. ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY MICHAEL QUIGLEY, DIRECTOR, MUNICIPAL SUPPORT DIVISION, AND STEPHEN CLARK, TECHNICAL ADVISOR, OFFICE OF GROUNDWATER AND DRINKING WATER; GLENN HARVEY, DEPUTY ENGINEER/DIRECTOR, ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES, ACCOMPANIED BY FLORANTE SANTOS, MANAGER, INFORMATION SYSTEMS; JOHN ROBERT CARMAN, WATER QUALITY MANAGER, METROPOLITAN WATER DISTRICT OF SALT LAKE CITY, ON BEHALF OF THE ASSOCIATION OF METROPOLITAN WATER AGENCIES; AND MICHAEL P. WALSH, PRESIDENT, SHORELANDS WATER CO., ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION, AND THE NATIONAL ASSOCIATION OF WATER COMPANIES

Mr. PESACHOWITZ. Mr. Chairman and members, I am Alvin Pesachowitz, Chief Information Officer of the Environmental Protection Agency. It is a pleasure to be here today to discuss the impact of the Year 2000, or Y2K, technology problem in the area of water resources.

I am accompanied, as you mentioned, by Mike Quigley, Director of our Municipal Support Division, and Stephen Clark, Technical Advisor, Office of Groundwater and Drinking Water for EPA's Office of Water.

If it pleases the committee, I would like to submit my written comments for the record. You already mentioned they will be included.

Mr. HORN. Right.

Mr. PESACHOWITZ. Before addressing specific drinking water and wastewater treatment Y2K issues, I would like to summarize EPA's progress toward our own internal agency Y2K compliance. I am pleased to report we have evaluated all of our mission-critical systems for vulnerability and have established system-specific compliance schedules. Forty-six of our 58 systems are now compliant, including all five of our water-related systems. Based on our progress, your Subcommittee on Government Management, Information and Technology recently gave us a B for the last quarter.

Now let me turn specifically—

Mr. HORN. That is a good grade, I might add. Most got F's and D's. You are right at the top of the chart.

Mr. PESACHOWITZ. We appreciate it, and continue to look forward to you continuing to monitor Federal Government activity in this arena.

Now let me turn specifically to the subject of Y2K conversion in the water and wastewater areas. EPA has the lead for the drinking water and wastewater utility sector under the President's Council for Y2K Conversion. We are working hard with our Nation's public and private utilities to assure that the Nation's drinking water supplies and wastewater treatment capabilities are not impaired by the Year 2000 conversion issue.

EPA is working with the municipal and private utilities to help them address this problem, implement plans to assess and repair problems when found, make contingency plans, keep their customers and the Federal, State and local governments informed on progress. EPA's role is to actively encourage and complement these efforts to the best of our ability.

The drinking water and wastewater utilities are owned by local governments and private companies. They range in size from small, serving communities anywhere from 2,500 to 3,300 people, to large, which serve populations over 100,000.

With respect to their operations, drinking water and wastewater utilities deal with specific water quality problems in their localities. Their methods of treatment vary. As you might guess, the treatment systems also vary greatly in their degree of automation and sophistication, with the larger plants being heavily automated, while some of the smaller plants have little, if any, computerized equipment.

However, many plants, both large and small, have individual pieces of equipment that have embedded computer chips. Larger plants depend on computerized control systems that run plant operations based on information received from sensing and monitoring instruments. These systems are known as Supervisory Control and Data Acquisition or SCADA systems. It is critical that steps be taken to ensure that this equipment continues to operate properly on and after January 1, 2000.

To gain an industry-wide understanding of Y2K preparedness, we have had a wide variety of contacts with the water industry trade associations, many of whom are here today. Based on numerous discussions and site visits, we believe that most of the large drinking water and wastewater plants are aware of the problem and are actively taking steps toward corrective action.

We continue to be concerned, however, about the readiness and the level of awareness of the small and medium-sized plants. Although they are generally less automated than the larger plants, and some of the smaller plants may have little, if any, computerized equipment, without examination and assessment it is hard to predict whether these plants are prepared. Plant managers have said that much of the equipment in these medium and small plants contain embedded chips that are not date sensitive, but, rather, are simply sensing devices. Nevertheless, we are encouraging all plants, regardless of size, to assess, correct, test and validate, implement, and plan for contingencies.

EPA has also held two water utility stakeholder meetings with representatives from some of the largest national drinking water- and wastewater-related trade associations, such as the American Water Works Association, Association of Metropolitan Sewer Agencies, Association of State Drinking Water Administrators, the American Society of Civil Engineers and the Water and Wastewater Equipment Manufacturers Association.

During our stakeholder discussions, several of the associations said they had surveyed their members. They were careful to state that the surveys did not represent a statistical sampling but, rather, served as indicators of Y2K readiness. Their representatives will undoubtedly be sharing the survey results with you here today.

Let me now address external factors beyond the control of these utilities, most significantly the state of readiness of the electric and telecommunications utilities and our transportation system. Most drinking water and wastewater treatment systems cannot operate without an outside source of electricity. Wastewater treatment utilities have some ability to generate electric power themselves and to be able to operate in an emergency for short periods of time. However, most drinking water plants do not. Therefore, should the country experience electricity failures, some of our drinking water utilities may not be able to operate and will need to be depending on their storage reserves or on other facilities' water supplies. We should remember, however, that these facilities have experienced contingency planning to address short-term outages during natural disasters such as hurricanes, floods and ice storms. In most instances, good planning has resulted in quick recovery.

In addition, suppliers to the treatment systems, such as chemical companies supplying chlorine and fluoride, can be subject to their own Y2K problems or transportation problems, resulting in a lack of supplies needed for water treatment. We are encouraging drinking water and wastewater utilities to meet with these external suppliers such as power utilities, telecommunications utilities, chemical and other material suppliers to ensure that their contingency plans address the potential inability of these entities to deliver needed materials and services.

Given the information that EPA has received from outreach efforts to our water industry stakeholders, we are cautiously optimistic that our drinking water and wastewater utilities will be prepared to meet their water treatment responsibilities on January 1, 2000. Nonetheless, we are encouraging the water utility sector to specifically address Y2K issues in its contingency planning efforts as a common sense precaution.

EPA, for its part, is continuing to focus on our efforts on medium and small plants to ensure continued progress in contingency planning.

In closing, I would like to say that the drinking water and wastewater utilities are making good progress in their efforts to identify and fix potential Year 2000 problems. We continue to reach out to these utilities, both large and small.

I would also like to commend the trade and professional associations for bringing this issue to the attention of their members, providing information and assistance, conducting surveys and generally supporting Federal, State and local government efforts to ensure that this problem is solved.

Thank you for this opportunity, and I look forward to your questions.

Mr. HORN. Thank you very much.

Our next witness is Mr. Glenn Harvey, Deputy Engineer/Director, Association of Metropolitan Sewerage Agencies. You are accompanied by Mr. Santos.

Mr. HARVEY. Thank you.

Mr. Chairman and members of the committee, I am Glenn Harvey of the Alexandria Sanitation Authority in Virginia, a member of AMSA. I appear before the committee today representing the Association of Metropolitan Sewerage Agencies.

AMSA appreciates the opportunity to present the results of its June 1998, survey on the issue of Year 2000 readiness to the committee.

In June of this year, AMSA conducted a survey of its members to assess the extent to which wastewater agencies have evaluated the Year 2000 problem, the estimated cost to remedy the problem, the status of implementing solutions, the impacts of potential system failures and whether plans are in place should systems fail. My testimony today will highlight the results of AMSA's survey.

Computers, microchips, electronic data logging and analysis and remote monitoring and control systems are widely used and are critical components in the overall functions of the Nation's public wastewater treatment agencies. These systems contribute to varying levels of automation. While many of the functions within wastewater agencies can be automated or computerized, they can also be performed manually.

Respondents to our survey indicated that an average level of automation of 54 percent existed.

Nearly 100 percent of agencies responding indicated that computers were used in process control, laboratory, industrial compliance, billing systems and for other administrative purposes such as finance, inventory, and maintenance management systems.

Ninety percent of the survey's respondents have developed a plan to assess and address the Y2K problem. Of these, approximately 95 percent have begun to implement solutions, while 26 percent are complete or nearly complete.

Some agencies are running tests on software and hardware systems by making them think it is January 1, 2000, and observing the results. Because of the inability for wastewater agencies to directly test all systems which use embedded microchips, these systems remain the largest unknown, and it is—really, technically, the biggest difficulty with this is testing those embedded systems and finding them.

Costs to address the Y2K problem vary widely. Forty-five percent of the wastewater agencies estimated costs running from nothing to $100,000. Fifteen percent reported estimated costs in excess of $1 million. The two highest reported values were about $15 million. Most of the agencies reporting expenditures in excess of $1 million were relatively large systems. However, 17 percent of these were agencies serving populations less than 250,000 people. In general, most agencies reported total estimated costs to fix the Y2K problem between zero and 2 percent of their annual operating budgets.

Although most agencies believe they will be Y2K compliant in 1999, AMSA's survey requested the agencies project the resulting impact should a Y2K failure occur in any critical systems.

While a number of systems received attention in my written testimony, this morning I would like to focus on process controls.

All responding agencies with automated process controls have the ability to switch to manual operations almost immediately or within hours of a Y2K failure. Approximately 15 percent reported potential treatment plant problems and possible compliance issues as a result of switching to manual mode.

One potential catastrophic failure issue beyond the control of the wastewater agency is the occurrence of a major regional electric power failure. Some agencies indicated that they can operate their treatment plants indefinitely through the use of diesel or natural gas powered generators, although whether they can obtain fuel during this type of emergency is in question.

Other agencies, including mine, cannot operate their plants without adequate electrical power. Obtaining this backup capability is frequently not technically feasible or economically reasonable. Even if adequate backup power is available at the treatment plant, there could still be trouble with backup power and electric power at pump stations, and failures at pump stations could lead to sewage overflows into creeks or sewage backups into our homes.

Nearly 55 percent of the agencies have a plan of action should all or a portion of their systems fail in the Year 2000. Some of the agencies with no plan in place indicated that their systems were already or soon to be Y2K compliant, and a plan was not necessary or applicable.

At my agency, we have been actively pursuing a program to ensure that the authority will be compliant by the Year 2000. We have begun extensive testing of our software and hardware. Particular attention has been paid to the difficulties of testing embedded chips in our instrumentation and control systems. We believe the major electric grid, if it stays up, we will be able to perform our primary function of treating wastewater continuously.

While the results of the AMSA survey indicate clearly that a large segment of the wastewater industry will respond effectively to the challenges presented by the Year 2000 problem, we do have concerns in the enforcement arena. AMSA recently learned that the U.S. EPA is going to issue a policy to encourage the testing of systems for Y2K compliance. The policy would limit permittee liability for violations that occur as a result of Y2K testing.

This policy is not anticipated to cover any Y2K-related violations that occur after January 1, 2000. We are concerned that, without such a policy, it is unclear if or how POTWs will be held accountable for potential violations occurring as a result of circumstances beyond our control.

Since the time our June 1998, survey was conducted, several issues regarding contingency planning and the effects of external problems have been raised. AMSA is in the process of conducting a follow-up survey to obtain a national perspective on how these issues may affect wastewater services nationwide. The results of this follow-up survey will be provided to the committee in early November.

On behalf of AMSA, thank you for this opportunity to testify, and I welcome any questions you may have.

Mr. FOSSELLA. [Presiding.] Mr. Carman.

Mr. CARMAN. Good morning, Mr. Chairman, members. My name is Jon Carman. I am Water Quality Manager for the Metropolitan Water Dist. of Salt Lake City.

Today, I am testifying on behalf of the Association of Metropolitan Water Agencies of which my utility is a member.

The Metropolitan Water District of Salt Lake City operates and maintains raw water transmission, treatment and finished water distribution facilities in three counties in Utah. We estimate that our facilities serve a population equivalent of 625,000 people.

The Association of Metropolitan Water Agencies is comprised of the Nation's largest publicly owned water suppliers, altogether serving over 100 million people with clean and safe drinking water.

In addition to complying with dozens of State and Federal requirements mandated by the Safe Drinking Water Act, the Nation's water suppliers have been confronted with the potential hazards posed by the Year 2000 issue. Nevertheless, the majority of water systems, especially those systems that serve large concentrated populations, appear to be prepared to meet this challenge.

To evaluate Year 2000 compliance, it is important to know that 14 percent of all drinking water systems are medium to very large in size, and they serve large concentrations of consumers. Collectively, this 14 percent of systems serves nearly 222 million people, or 90 percent of the Nation.

According to the survey conducted by the Association of Metropolitan Water Agencies, the American Water Works Association and the National Association of Water Companies, systems serving between—I should say more than 100,000 consumers, appear to be well only their way to achieving compliance. Many have already reached that point.

In this effort, most systems serving over 100,000 people will spend up to $1 million each to assure compliance, and certainly some will spend more.

The vast majority of systems serving over 100,000 people have formal Y2K compliance plans. They have completed utility-wide assessments and risk assessments to identify all critical applications. Also, these systems report that they are confident that internal Year 2000 planning, implementation and testing will be completed in time. About 90 percent of these systems are similarly confident that their work on external factors will also be completed in time.

Given this degree of preparedness, the committee should feel secure that an overwhelming majority of consumers will not be affected by internal Year 2000 compliance problems.

We are, however, concerned about reliable transportation, electric and telecommunication services. Therefore, water suppliers are encouraged to speak with these service providers to discuss preparedness and contingency plans.

On the enforcement front, it has been reported that EPA's Office of Compliance and Enforcement and the Department of Justice are developing a policy to govern enforcement of drinking water regulations if violations occur due to Y2K problems. Water suppliers have not been invited to see a draft of this policy or to offer our comments on the subject.

AMWA hopes EPA and the Department of Justice will develop a fair process to evaluate violations related to Y2K technology problems. The process should include, at least, an investigatory phase to determine the exact nature of the violations, a due diligence standard and an opportunity for water suppliers to formally respond to enforcement actions.

Switching gears, I would like to take a moment to provide you with an example of my district's Year 2000 compliance efforts. I will tell you about the work we have been doing at the Met Water District of Salt Lake City.

Our work on the Y2K compliance issue began in February 1998. The district prepared a simple plan for finding and resolving all Year 2000 problems. This plan had five primary components: inventory, assessment and testing, external suppliers, repair and replacement, and contingency planning.

District management's goal was simple: Do whatever it takes to avoid an interruption of service. We are well along in this program. The inventory phase is now complete. We have initiated the assessment and testing phase of our program.

Concurrently with a review of external suppliers for our district, chemical supply availability is a primary concern. Some of the chemicals we depend on are shipped via the railways. Rail transportation problems could have a significant impact on our ability to operate. In a worst-case scenario, we can operate from chemical inventory for 30 days on all process chemicals except chlorine. Our chemical vendor assures us that a limited alternative supply of chlorine is available which does not utilize the railway for transportation. For contingency planning purposes, we believe we can operate for 21 days without restocking chlorine.

In 1993, the Little Cottonwood Water Plant, our primary facility, was equipped with an automated control system. While this system has improved performance significantly, it is important to note that the plant was operated manually for 33 years prior to the automation. This manual functionality still exists and represents the backbone of our contingency plan. The overwhelming majority of water treatment plants in this country were built prior to the computer era. Design requirements for water systems and wastewater systems in Utah specify manual control capability for all new systems.

Interruption of gas and power supply is a major concern for many large water facilities. From an internal perspective, we are capable of running 17 days on backup power before the need to refuel the generator. Interruption of gas supply can be survived for approximately 30 days utilizing diesel boilers to heat our facilities. It turns out that many of the facilities we have added to prepare for earthquakes have been very useful in our Year 2000 contingency planning. We are concerned about the potential external impacts of problems with the power supply. For example, there are several sewage lift stations operating in our watershed. If the lift stations are off line for a few hours, sewage overflows can contaminate our raw water supply.

Communications are also a large concern for our district. We have multiple, redundant systems, but certainly those systems which depend on the telephone system for data telemetry have a large concern.

In conclusion, the bulk of the Nation's large water suppliers are following similar Y2K compliance plans and will spend significant funds and staff time to ensure that water consumers will continue to receive uninterrupted service and high-quality drinking water.

I sincerely appreciate the opportunity to be here today, and I would be pleased to address any particular questions or concerns you might have.

Mr. FOSSELLA. Thank you very much, Mr. Carman.

Now Mr. Walsh.

Mr. WALSH. Thank you, Mr. Chairman.

Good morning. I am Michael P. Walsh, President of the Shorelands Water Company in Hazlet, New Jersey. I am here to testify today on behalf of the American Water Works Association and the National Association of Water Companies. I am the current chairman of the Small Companies Committee of the NAWC and a member of AWWA. AWWA and NAWC appreciate the opportunity to present their views on the Year 2000 technology problem.

Founded in 1881, AWWA is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 55,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, educators and health professionals. The association's membership includes over 3,900 utilities which provides over 80 percent of the Nation's drinking water.

NAWC is the nonprofit trade association that exclusively represents the Nation's private and investor-owned drinking water utility industry. Its membership of over 330 companies in 42 states provides drinking water to nearly 21 million Americans every day. NAWC serves as the Ambassador for the $3 billion industry that employs 15,000 people.

Shorelands Water Company has a 20-square-mile service territory in northeast New Jersey, serving an estimated population of 33,000 people through 10,000 connections. In size, Shorelands Water Company is on the borderline between small and medium-sized public water systems. However, we deliver in excess of 1.7 billion gallons of water per year.

In an effort to satisfy itself and to be in a position to answer a multitude of inquiries regarding Year 2000 from local, county, State and Federal agencies, Shorelands has identified the following six items for investigation: production, distribution and storage, telecommunications, meter reading, billing and accounting.

Shorelands' self-assessment indicated we are internally Y2K compliant for items 1 through 5. A new accounting package has been purchased which is Y2K compliant. Shorelands is now in the process of running that new accounting system parallel with the old system and anticipates changing over to the new system on January 1, 1999.

However, Shorelands' assessment of its own capabilities regarding Y2K also considered the domino effect that may result if critical vendors and suppliers fail to provide the following major items: one, electricity; two, purchased water; three, fuel; and, four, water treatment chemicals.

Shorelands' ability to provide safe drinking water to our service area relies on a large component of water purchased from another water supplier. This is delivered through two interconnections. Should that purchased water component fail to be delivered, Shorelands would rely on a 2-day supply of water in storage and would maximize its own production of potable water if electric power was still available.

If a power outage were to occur simultaneous with the failure of the purchased water to be delivered, Shorelands, as well as many other small to medium community public water systems, has capability to switch over to an internally generated power supply. At

Shorelands, this backup supply would not power the full system and relies upon diesel fuel stored on premises.

Assuming the worst-case scenario, that the Y2K bug would have knocked out the purchased water supply, power grid and the delivery of additional fuel, Shorelands could continue to provide safe drinking water for 3 days. That, together with the stored water in early January 2000, would result in a 5-day supply.

Monitoring the transmission and distribution system relies on the abilities of Shorelands to utilize its SCADA system. This system allows us to open and close valves, start and stop pumps, as well as monitor tank levels. Should the power grid fail, those systems would also go down, regardless of the fact that it is Y2K compliant.

Shorelands' contingency planning involves such things as topping off fuel and chemical supplies near the end of 1999. Obviously, we will try to have water storage tanks full and will have tested all relevant equipment.

While many surveys ask and/or request we secure guarantees from vendors that they will be able to provide materials and supplies, we have not found a willingness of vendors to provide those guarantees.

I will skip over the details of the survey conducted by AWWA and NAWC. I believe that has been covered.

I will conclude by thanking you for the opportunity to speak before this committee and remain available for questions. Thank you.

Mr. FOSSELLA. Thank you very much, each of you gentleman, for taking time out to join us here today. We may have a vote in a couple of minutes, so we may have to call this hearing in recess at that time.

My first question is addressed to Mr. Pesachowitz. With my name, Fossella, I can understand that.

Is the EPA willing to consider granting waivers to water utilities who made a good-faith effort to convert their systems but find themselves in violation of EPA standards?

Mr. PESACHOWITZ. I believe, as was stated by a couple of the gentleman here, we are currently in the process of developing an appropriate enforcement policy for water systems that might fail due to Year 2000. We are working right now on trying to develop a fair and balanced approach particularly related to testing in case these gentleman need to test their equipment or their computerization prior to Year 2000. We want to develop a way for them to do that and encourage that.

One of the things that is currently under consideration is the establishment of a notice of system testing which would identify due diligence and would potentially provide the notification that we would need that this was actually a test and that, if there was a subsequent violation, we would deal with that on a kind of individual basis.

We are working with the Justice Department now to try to come up with a comprehensive policy so that we can announce it over the next couple of months so that we can make these people to my right feel a little bit more comfortable with how EPA is going to proceed on the enforcement front.

Mr. FOSSELLA. Do any of you gentleman have a response to Mr. Pesachowitz?

Mr. HARVEY. I think everyone in the regulated community would like a real chance to review this. We have not had any real details. We would like a chance to review the policy and have input to it. The details are very fuzzy right now, and what we have heard, as he said, hasn't been very comforting today.

Mr. FOSSELLA. Is there a deadline set for when the EPA and the Justice Department will work this out?

Mr. PESACHOWITZ. There is no specific deadline at this point. I will certainly go back and talk to our enforcement people and encourage them to share the development of that policy with the folks in the associations so we can get some of their educated input into that policy.

Mr. FOSSELLA. Is there a time line which you would like? Say you need at least 6 months or 9 months? Is there some deadline that you would like to see the results of the EPA's new rules and regulations?

Mr. CARMAN. Certainly, at least from my perspective as the operator of a water plant, we are already well along on our way to meeting what we view as compliance with the Year 2000 standard. So what will the definition of due diligence be? Will I have to backtrack and do a whole bunch of modification in my paperwork to meet the EPA standard when I am already so far along? Or will there be a more generic approach to it that allows different approaches?

Many people in the industry are already well along in the process. Do we have to go back and reconstitute or repackage something to meet with that compliance standard? That is just extra work.

So input to the process is probably the most valuable thing, and we would like to discuss that up front. My concerns would be different from another large water utility based on their point in the process; where are they? If the plant comes out and haven't started their work or they are in the very preliminary phases of it, it will not be too hard for them to meet with the standards from EPA and the Department of Justice. If they are already well along, have to backtrack, that is complicated.

Mr. FOSSELLA. Do you believe that the EPA should consider granting waivers to the water suppliers who make a good-faith effort to fix their systems?

Mr. CARMAN. Yes, I do. I would add, at least from our perspective, our biggest concern is not necessarily water quality violations but reporting violations, because much of our data that we collect is for reporting through computers. The rest of the system is easy to operate in a manual mode. To collect the data we send to EPA to demonstrate compliance is our greatest risk. We may not have a number there. For us, that is a problem.

A waiver on at least certain items, if not all issues for people who have demonstrated good-faith effort, would be very attractive.

Mr. FOSSELLA. So each of you—Mr. Walsh?

Mr. WALSH. I would second that and suggest that the time frame for reporting be extended at that point where we change it to the new millennium. I think our survey indicates we will have general compliance for the majority of the population of consumers in this country. There may be some small outages, but I think we are well on the way to providing the education and providing the mentoring that is necessary to get the smaller utilities on line. However, the reporting function is something that should be addressed.

Mr. FOSSELLA. Specifically, do you have any recommendations?

Mr. WALSH. Specifically in extending the time frame for reporting and where we do not incur technical violations for reporting a test at some date other than prescribed by code?

Mr. FOSSELLA. A month? Six months?

Mr. WALSH. Well, if the testing is reported monthly, it may slip. If it is required quarterly, it may not slip. But I think the monthly testing requirements should certainly be given some flexibility.

Mr. FOSSELLA. As of today, what is the EPA's I guess right to enforce, given the nature of the violations? If a utility is not in compliance, you are trying to either grant a waiver or to work with the Justice Department—

Mr. PESACHOWITZ. Actually, what we are trying to do is do the right thing here and work on an individual, case-by-case basis to determine the due diligence, even though we don't have a standard in place. This is a very complicated issue because we not only have to work with the water utility industries that are here today but in terms of developing an enforcement policy that would be applicable overall to the rest of the regulated community. We would like to try to find a policy that would be easy for everyone to understand and also affect the broadest spectrum of the environmental community.

Mr. FOSSELLA. Thank you.

Shifting gears for a second to Mr. Harvey, I believe in your testimony you mentioned that automation is widely used within the Nation's public wastewater treatment agencies. However, all of these functions can be performed manually. These agencies rely upon manual operations in backup contingency plans for Y2K. Where will the manpower come from that is trained to handle these kinds of operations?

Mr. HARVEY. Well, we as an industry range between zero percent automation and 90-plus percent. I think because of the technical difficulties of identifying all of the embedded chips you will see a lot of people around the 2000 date pulling in maintenance staff, pulling in managerial staff. I am afraid it has been 20 years since I pulled a bar rack, but I still can. We will be pulling in extra staff from our maintenance and administrative functions.

Mr. FOSSELLA. So you feel confident—

Mr. HARVEY. Yes, even if all of my plant instrumentation and control systems failed, which I am confident not all of them will, even if they all did, we could run for virtually indefinitely, though the overtime would be murder, but we could run virtually indefinitely in manual mode until we got those systems replaced.

Mr. WALSH. Generally speaking, the industry relies on shift workers, and in Shorelands' case we have three 8-hour shifts. We would take people from other shifts and combine them to get the necessary manpower. It would result in some overtime, but that is not the primary concern. It would be keeping the water flowing.

One other point that I would like to bring up is that, although I hear what EPA is suggesting and it sounds like a good way to go, there are other State agencies that do have regulatory control over at least the investor-owned segment of the business. I would ask that there be coordination between the Federal and the State level so that we do not get duplicative in adhering to different sets of rules.

Mr. FOSSELLA. Is there coordination?

Mr. PESACHOWITZ. I believe there is at least some level of coordination between EPA and the State agencies. Whether we will get universal agreement between the States that have been delegated these programs or run these programs in our own enforcement view, that is problematic, let us say.

Mr. FOSSELLA. The word problematic is open to definition.

Mr. PESACHOWITZ. Correct. I do think, overall, we will try to set up a program that the States in most regards would try to accept in terms of a reasonable way to move forward with enforcement. It is just that I can't kind of guarantee that that is going to happen sitting here at the table today.

Mr. FOSSELLA. Is it being done State by State? For example, New York State as opposed to the City of New York, the department of environmental consultation at the State level? Are people meeting now to address whether there are redundancies and duplications and whether the State might want to impose additional burdens or standards?

Mr. PESACHOWITZ. I will probably have to address that question for the record, since I am not the head of the enforcement office. I am not sure at what level those conversations are occurring.

[The information received follows:]

INSERT FOR THE OCTOBER 7, 1998 HEARING RECORD
HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
TESTIMONY OF EPA'S ALVIN M. PESACHOWITZ

On November 30, 1998, EPA released a policy which addresses compliance issues related to Year 2000 (Y2K) problems. The policy is an attempt to responsibly and in a fair-handed manner address Y2K non-compliance.

The policy is designed to encourage prompt testing of computer-related equipment to ensure that environmental compliance is not impaired by the Y2K computer bug. Under this policy, EPA states its intent to waive 100% of the civil penalties that might otherwise apply and to recommend against criminal prosecution for environmental violations caused during specific tests that are designed to identify and eliminate Y2K-related malfunctions. This policy is limited to testing-related violations disclosed to EPA by February 1, 2000, and it is subject to certain conditions, such as the need to design and conduct the tests well in advance of the dates in question; the need to conduct the tests for the shortest possible period of time necessary; the need to correct any testing-related violations immediately; and, other conditions to ensure that protection of human health and the environment are not compromised.

The policy bears many similarities to the Agency's Audit Policy, which has been widely discussed and reviewed by our State partners, the regulated community, and the public. In developing the policy, EPA coordinated closely with the Department of Justice. In addition, the basic elements of the policy have been discussed with numerous State representatives at the National Association of Attorneys General (NAAG) and the Association of State and Territorial Solid Waste Management Officials (ATSWMO) meetings held in Washington this fall.

The policy has been made available on the Agency's Y2K web site on the Internet and through other means. It will be published in the *Federal Register* along with any modifications that may be necessary as a result of comments that come to us from the States, the regulated community, and the public. With the recent release of this policy, EPA's Regional Offices will now distribute the policy to their State counterparts to ensure State coordination, consistency, and opportunity to comment.

Mr. FOSSELLA. This is for any of the folks on the panel. What happens if the supervisory control and data acquisition system is faulty because of Y2K complications and is reporting incorrect data?

Secondly, would this affect the operations of the pumping stations and treatment facilities?

Mr. WALSH. In our preparedness, we have evaluated that consideration, and what has happened in the past and has worked satisfactorily is we get—in the northeastern part of New Jersey, we get knocked out because of heavy storms or hurricanes; and, when that occurs, we go back to a manual mode, which really involves a backup pulse system to record our data from remote sites. If that fails, we have gone back to sending people out in vehicles to physically visit sites and get readings.

Mr. FOSSELLA. So it is almost like the Y2K is going to be a continuation of situations you have been dealing with.

Mr. WALSH. We have dealt with it on a short-term basis in the past, and we can deal with it on a short-term basis if that situation were to occur at the turn of the century.

The critical point is that we can operate without electricity for a short duration, but that is defined as short, and we would suffer a loss in pressure at the end of that period. That results in health considerations, inability to fight fires, and that could become very critical.

Mr. FOSSELLA. I have a few minutes left.

Mr. Carman, given the sort of interrelationships among all the other industries that you need to be involved with and specifically the electronic transmission that takes place, what would happen, in your opinion, if you were unable to submit your monitoring data to the States due to the Y2K failure with electronic transmission?

Mr. CARMAN. It is pretty hard to say what would happen. We submit to our State electronically, and I believe they submit their data to EPA electronically. It is not an instance that we have ever seen before, so I am not really certain what would happen if there were difficulties there. Certainly we go out of our way to avoid black marks just for PR purposes.

A reporting violation is different than a water quality standard violation, in my view, but they both show up the same way when we are suffering the attacks of the environmentalist groups, for instance.

Mr. FOSSELLA. Is it a concern of yours?

Mr. CARMAN. Very much. We want to keep a clean record. That is important to us. I appreciate the fact that EPA is contemplating how to handle those things. There is certainly the chance in this process, as you suggested. I will probably be at the plant on New Year's Eve, 1999, and working well into the morning. I will be focusing on keeping the system running.

Reporting takes a secondary role in those situations. But at some point we have to come back and hit the desks and get those reports out. If it takes an extended period of time, there may just simply be delays because of priorities. Doing the paperwork and sending it, through, is, in my view, not as important as making sure the system is running properly.

Mr. FOSSELLA. Are you paying any attention or dedicating any efforts to dealing with this situation now? Just as a contingency?

Mr. CARMAN. As far as the reporting goes?

Mr. FOSSELLA. Yes.

Mr. CARMAN. No, we have not addressed that issue yet.

Mr. FOSSELLA. This is the last question, open to any of you if you want to respond, or we can recess the meeting and you gentleman are free to leave, and I want to thank you in advance. I wanted to thank you in advance for taking time out to testify today from different parts of our great country.

Is there anything else you would like to direct to the EPA, saying what really we would like to see accomplished or whether it is deadlines or in terms of rules or regulations or promulgations of some of these rules that would be beneficial and serve our national interests? For your industry specifically?

Mr. WALSH. I think keeping the lines of communication open and the willingness to listen to what the industry representatives have to say regarding their ability to comply or not comply with current regulation.

Mr. PESACHOWITZ. And I think we are committed to keeping those lines of communication open, as we have already had, I think, two significant meetings with members of the leaders of the associations.

I would say that I do believe the Environmental Protection Agency, as the name indicates, is most interested in protecting the public health and environment, and that is clearly our primary interest here in working with the water utilities, to make sure that our water, our drinking water and our wastewater, is adequately treated to protect public health and the environment.

Mr. FOSSELLA. On that note, “Happy New Year.” We will be in recess until 12:30 for the next panel. Thank you very much.

I would like to welcome everyone back here this afternoon, and we will jump right into our third panel, consisting of Mr. Lacy Suiter from the Federal Emergency Management Agency, Mr. John P. D’Aniello, U.S. Corps of Engineers, and Ms. Diane J. Bunch from the Tennessee Valley Authority, and we will start with Mr. Suiter.

TESTIMONY OF LACY SUITER, EXECUTIVE ASSOCIATE DIRECTOR, RESPONSE AND RECOVERY DIRECTORATE, FEDERAL EMERGENCY MANAGEMENT AGENCY; JOHN P. D’ANIELLO, DEPUTY DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY EDWARD HEUMPFNER, ACTING DIRECTOR OF INFORMATION MANAGEMENT, AND CORPS PROGRAM MANAGER FOR Y2K COMPLIANCE; AND DIANE J. BUNCH, MANAGER, ENTERPRISE OPERATIONS, INFORMATION SERVICES, TENNESSEE VALLEY AUTHORITY

Mr. SUITER. Well, good afternoon, Mr. Chairman. Thank you for the invitation to be here today. I am the Associate Director of FEMA for Response and Recovery. FEMA uses the FRP or the Federal Response Plan to coordinate response and recovery activities of the Federal family at the request of governors when major catastrophic disasters occur in a State, always in a supporting or a supplementary role to the State’s responsibilities.

If one views government and governmental relationships as a vertical organization, then FEMA in its planning process uses a bottoms-up approach. It all starts with the families, the local community, the businesses, the local government, then works its way up to the Federal family in terms of the response. So emergency management begins in the home and extends upward to the community, to local and State government and finally to the Federal family.

The Federal role is to support the governor and his staff in managing all hazards, including the Year 2000 problem. FEMA is addressing the problem in several ways. We are one of 34 sector coordinators supporting the President's Council on Y2K Conversion. Specifically, we chair the emergency services sector, which is developing an outreach plan, monitoring the progress and preparing for disruptions. Our outreach program will include or does include awareness, assessment and preparedness.

This sector will provide reports to the President's Council in the coming weeks that, when combined with the reports of the Federal agencies that they are already submitting to the Office of Management and Budget, will give us our first and our best indication of the extent of total government preparedness at all three levels.

Y2K will, for us, present two sets of response needs. The first is the need for technical support to the owners and operators of the disrupted systems. Information technology professionals in every organization, public and private, are working to meet this need by developing business continuity plans within their own agencies and their own areas of responsibility. FEMA's own plan will ensure that our mission critical systems will be ready, our primary systems, or that work-around operations will be in place for those systems which are not compliant.

The second response need is for emergency assistance to State and local governments to help them respond to the consequences of emergencies on infrastructure, public health and safety. We use the Federal Response Plan to deliver this assistance according to the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Our planning involves 27 Federal departments and agencies, and the States through our Regional Interagency Steering Committees. Emergency response, however, begins at the local level using a bottoms-up approach that builds on intelligence, assessment, preparedness, warning, and then finally response and recovery.

It is difficult at this point in time for us to define the nature of the extent of the Y2K threat to the emergency preparedness community, but we have a plan. It is called the Federal Response Plan. We use it to manage all major and catastrophic disasters in the country.

We will tailor the plan to Y2K, but to do that we need credible assessments, which is a process that is underway at this time. And those assessments will describe the specific vulnerabilities, the areas of highest risk and the possible consequences. The President's Council on Y2K Conversion will release a report later this year that will prioritize those risks and describe a realistic worst case scenario.

I meet on a monthly basis with the others in the Federal response community to focus attention on the particular needs and options that may arise from this event. It is difficult for us at this point in time to imagine a Y2K scenario that would trigger such massive consequences that would threaten lives and property. On the other hand, it is very easy to imagine scattered disruptions in critical systems that would complicate local, State and Federal efforts to provide Federal disaster response.

For example, disruptions in traffic control, communications or power would affect response efforts at all levels of government. And we are particularly concerned about some of the rural areas in the Northern and Western states facing their normal severe winter storms in the December/January/February time frame. The efforts of emergency management and fire service organizations throughout the United States cannot be viewed as a substitute for personal responsibility in community preparedness. Again, the bottoms-up approach.

As elected leaders, you play an important role in increasing public awareness and promoting personal initiative. We in FEMA appreciate your concern and commitment to this issue, and we will continue to keep you informed on our progress as the countdown towards the new millennium begins. Thank you, sir.

Mr. FOSSELLA. Thank you very much, Mr. Suiter.

Mr. D'Aniello?

Mr. D'ANIELLO. Good afternoon, Mr. Chairman.

Mr. FOSSELLA. Good afternoon.

Mr. D'ANIELLO. I am John D'Aniello, Deputy Director of Civil Works and accompanying today is Mr. Edward Huempfner, who is the Corps' Chief Information Officer and Program Manager for Y2K Compliance.

I would ask that my complete statement, which I have provided you, be included in the record.

Mr. FOSSELLA. Without objection, so ordered.

Mr. D'ANIELLO. Thank you. I want to first assure you that following the strong leadership of the Secretaries of Defense and Army, the Corps of Engineers is meeting the challenge posed by the Y2K problem. We are working under the Army's Y2K action plan, which requires certification of all systems and devices to ensure that we either do not have a problem, or that if there is a problem, it is fixed and tested. Senior level managers are personally involved in this effort, and appropriate resources are being applied to the problem.

For management purposes, the Corps has categorized our Y2K problems as either information systems or information technology problems; problems related to the Federal buildings that we hold; or problems related to our civil works projects such as our locks, dams and hydropower facilities.

We are currently assessing and renovating our systems. Our target date for completion of the renovation phase is 30 December 1998, and we are on schedule. Regarding our information systems and technology, which includes our computers and other office equipment, servers and software and the like, we do not foresee any problem that would affect the ability of the Corps to complete its missions.

Issues related to the federally owned buildings under the jurisdiction of the Corps include consideration of elevators, heating, ventilating and air conditioning controllers, access control, security surveillance, and fire detection and suppression systems. In these areas we have identified no threats to life or health in any Corps facility.

Our mission infrastructure includes all of the equipment directly related to the proper functioning of authorized civil works projects for navigation, flood damage reduction, hydropower, environmental protection and restoration and emergency management, as well as the support that we provide to others. Potentially vulnerable equipment in our mission infrastructure includes our boats and dredges, water control facilities, locks and dams, instrumentation controllers, power generation facilities, survey and geographic information systems equipment, laboratory instrumentation, and communication and photographic devices.

We have been paying particular attention to our navigation, flood damage reduction, and hydropower infrastructure issues that could be mission- critical.

We have determined that our navigation locks do not use embedded processors for critical control functions. Further, communication with the tows is by radio and this system has been inspected and is Y2K compliant. All locks have emergency generators for full-power operation. Established emergency operations procedures provide for contingency operations to minimize disruption in the event of natural or man-made disasters. We believe that our navigation business function is and will continue to be fully operational.

The operation of our major lakes and reservoirs, which are primary features in our flood control projects, offers the greatest potential vulnerability to the Y2K problem. We have not, however, identified any mission critical failure modes for embedded processors utilized in these facilities. As with our locks and dams, control of these facilities is capable of manual override.

Many federally constructed flood damage reduction projects are operated and maintained by our project sponsors. Through our continuing efforts in assisting these non-Federal entities in their own Y2K technical assessments, we are maximizing readiness and continuity of our overall flood damage reduction systems.

Our hydropower projects use a wide variety of automated systems for control and instrumentation. However, all power facilities can be operated manually with minimal loss of operational efficiency. For those hydropower projects that are normally unmanned and operated by way of remote control, operator staff will be on duty January 1st, 2000, should problems arise.

The Corps is actively coordinating with power marketing administrations of DOE and the Bureau of Reclamation to assure that the Federal portion of the power grid remains viable and stable.

Regarding costs for Y2K compliance, we will need to spend approximately $3.5 million on renovation and replacement of currently identified devices in the Corps.

In summary, the Corps takes the Year 2000 problem very seriously. We take considerable pride in successful execution of our missions in support of the Nation and assuring that that service continues. Every component of our extensive infrastructure is being carefully examined, and we expect to greet the new century eagerly and mission-ready.

Mr. Chairman, I would be pleased to address any questions that you have, and again, thank you for the opportunity to testify.

Mr. FOSSELLA. Thank you very much, sir.

We will hear from Ms. Bunch, and then we will open it to questions.

Ms. Bunch?

Ms. BUNCH. Thank you very much, Mr. Chairman, for the opportunity to address Year 2000 today. My name is Diane Bunch, and I am senior manager of Enterprise Operations at the Tennessee Valley Authority. I am here today representing Michael H. Davis, the Senior Vice President of Information Services.

As you know, TVA operates 225 generating units, maintains 17,000 miles of transmission line and manages the Nation's fifth largest river system. We move power through our transmission systems to 159 wholesale customers, 64 directly served customers, and 8 Federal agencies. TVA supplies the energy needs of approximately 8 million people in a service area covering 80,000 square miles in seven Southeastern States. We also exchange power with 14 neighboring utilities.

In 1996, the TVA Board asked Information Services to ensure that TVA would be able to meet its responsibilities in providing electricity to our customers on and after January 1 of 2000. Information Services embarked upon an aggressive program to address TVA Year 2000 problems.

Our year 2000 mission has been to fix all mission critical components by December 31, 1999. We have an internal goal to complete the majority of that work by December of this year and spend calendar year 1999 in testing and contingency planning. We are using a phased approach to inventory, assess, remediate and test all of our mission critical components.

In most respects, TVA faces the same challenges that every other industry has. Of greatest concern is the pervasiveness of the use of embedded chips and the problems they present. These chips are used in communication devices and in many of the power system controllers. Fortunately, we have found through testing and assessment that less than 5 percent of these chips have a date/time function that results in a Year 2000 problem. Overall, we are tracking over 21,000 mission critical components, and as of this date have completed closure on 48 percent of those, and we fully expect to meet NERC's guideline to be ready and operational by June 1999.

TVA is actively participating with its customers to develop a comprehensive set of operating, restoration and emergency preparedness plans to mitigate the risk of service interruptions. TVA and its power distributors are exchanging information through the Tennessee Valley Public Power Association (TVPPA). The TVPPA will participate with TVA and the North American Electric Reliability Council (NERC) in upcoming interconnection drills.

TVA will facilitate a drill planning session in November 1998, and NERC will facilitate two drills in April and September 1999. Our contingency planning efforts and readiness drills will include State and local governments as well as other emergency preparedness organizations.

TVA is working with its external business partners to ensure that a Year 2000 problem in some other part of the supply chain will not impact our ability to produce and deliver power. We have reviewed and prioritized our mission critical suppliers and have asked about 2,300 different companies to certify their Year 2000 readiness.

TVA is participating at the national, regional and industry levels to prepare for a smooth transition into the 21st century. We are working with NERC and other regional utilities to share information and develop contingency plans for uninterrupted power service operations.

TVA is reporting quarterly status to the Office of Management and Budget, and has just completed an on-site assessment by the General Accounting Office. The Nuclear Regulatory Commission will be on-site next month to review our Watts Bar nuclear facility.

In addition to government oversight, TVA has initiated self-evaluation by consultants from the Gartner Group and from Booz Allen & Hamilton to identify any opportunities to improve and strengthen our program. We are participating with a number of electric utility industry groups to share information and build upon each other's experiences.

Currently we are working with the Electric Power Research Institute, the Nuclear Engineering Institute, and the Nuclear Utility Software Management Group, and we have participated in a number of distributor communication forums sponsored by our Customer Service and Marketing organization. Most recently TVA co-sponsored and participated in panel discussions during the "Countdown to 00" summit mentioned by Congressman Bob Clement this morning.

In summary, TVA is taking the Year 2000 problem very seriously. We have a multifaceted program. It is very proactive and supported by top management. We are aggressively coordinating and cooperating with others in the industry to identify and manage risk in order to mitigate service interruptions. TVA is doing everything within our power to ensure reliable and continuous electric service in the Tennessee Valley region.

Thank you for the opportunity to speak today. I would be happy to answer, to address any questions.

Mr. FOSSELLA. Thank you very much. And thank each of you for your fine testimony and your patience with us today.

Let me just start with Ms. Bunch. You concluded by saying you are doing everything within your power. Is there something beyond your power that really needs some attention or some additional focus to allow the TVA to become Y2K compliant?

Ms. BUNCH. As you know, we participate and put power into the grid, so there are a lot of different entities that actually deliver electricity. We are working very closely with NERC, and NERC is coordinating an overall industrywide approach that involves the generators, the transmitters of power, and the actual distributors as the last leg. We are working very closely with those folks to ensure that all of the different components are ready for Year 2000.

Mr. FOSSELLA. Along those lines, if several power suppliers go off line January 1, 2000, do you believe that the power grid will remain stable and operational?

Ms. BUNCH. Yes, sir. And there is a lot of contingency planning going on around to make sure that that happens. It is a typical event, not unlike any other day, that we may lose a plant because of some sort of trip or problem, so we have plans that are established to handle those situations.

As part of the contingency planning effort, there will be additional reserve on line that would be ready to start up in the event that some plant should come off line. We, too, will have manual operating procedures ready to take over in case there is some loss of communication, and we will have additional plants ready to take up any loss of power.

Mr. FOSSELLA. How much have you spent so far or expect to spend?

Ms. BUNCH. In total, TVA is planning or forecasting to spend about $37 million. We have spent $7 million prior to this year, about $11 million this year, and expect to spend about $17 million next year.

Mr. FOSSELLA. What has been the most difficult aspect of fixing it?

Ms. BUNCH. I think the overall magnitude of the effort. We have 10 program areas covering our Year 2000 program, and they touch every piece of other business. So the overall magnitude has been the most difficult part, rallying that much resource around this issue for the duration and trying to get it fixed.

Mr. FOSSELLA. Let's see a thousand years from now to get to it again.

Mr. Suiter, in your opinion, where would a Y2K problem most likely jeopardize public safety? And, secondly, what has your agency been doing to prevent such a thing from happening, if at all, if it is a concern?

Mr. SUITER. I don't know that we can prevent it from happening. Obviously the ability of local governments to operate is critical to provide their normal services that they have to to the community infrastructure, to the water systems, to whatever the requirements might be. A failure--a catastrophic failure, which I can't imagine—but a catastrophic failure at the local government level always worries us the most.

To that end, we have a series of bottom-up approaches that we are working with the local governments, through the governors in the country, to advise them of the different types of preparedness activities that they should be taking, for instance, in their 911 systems. The Department of Justice is working with the law enforcement community. The United States Fire Administration is working with the fire service. The Department of Transportation is doing the emergency medical service. And then FEMA, through its Preparedness Directate, is tying all of those things together. If there would be a failure in any one of those particular systems, how you would tie that together, what the work-around option would be, and how it would happen.

That is one effort, the outreach or the preparedness at the local government level. The second is what the States themselves are doing, and we think that the States are taking responsible approach in getting their own systems in order—their ability to communicate up, down and sideways speaks for itself, with their people and their critical systems. I know my own State of Tennessee, a great deal of work has already been accomplished there, and we feel pretty good about the State's ability to manage and respond to emergencies.

And the third level is what the Federal family is doing, and that is through the Catastrophic Disaster Response Group and how we would manage or respond to Y2K consquences. We meet monthly with this particular group. It is 27 Federal agencies. We are assessing their ability to continue, as John has just mentioned here, their own operations, and then how their operations affect the other parts of the Federal family, and then how all that goes to the services that are required. So I think we are moving along, in terms of that activity, pretty well.

Mr. FOSSELLA. Will there be an actual Federal Response Plan to assist the States and localities?

Mr. SUITER. There will be a supplement to the Federal Response Plan. The Federal Response Plan is the President's directive on how the Federal Government operates and the response to any type of public health or safety emergency. So, yes, there will be a tested and evaluated Federal Response Plan.

Mr. FOSSELLA. When will that be released or available?

Mr. SUITER. We expect the Federal agencies, which if we hadn't been dealing with all the hurricane along the Gulf Coast and then Puerto Rico and the other problems around the country, to have had their assessments in to us on September the 30th. That has now been delayed to October the 15th. A series of meetings will follow that for the primary agencies.

We will complete the vulnerability assessment by December, both the one that FEMA is doing and the one that the President's Council is doing. In January we will present, actually to members of your staff on this committee as well as to the President's group, what our concept paper on the Federal Response Plan supplement will look like and what the role will be in terms of the President's management.

The director intends—the director of FEMA, James Lee Witt—intends to brief all the State emergency management directors in January. In a subsequent meeting, he will be briefing the Nation's governors on the health of the emergency management system and response in the country. That will be followed by a series of tabletop exercises in our Regional Interagency Steering Committees at our 10 regional locations, which ties together the State agencies and the Federal agencies.

Hopefully, the State agencies then will get the guidance to go back and work with their local governments, and then we will have a Federal Response Plan tabletop exercise here at FEMA headquarters in May. We will complete the supplement in the June 1999 time frame. We will have our supplement and be ready to operate July 1st.

I realize that is a long answer but you said you wanted it.

Mr. FOSSELLA. Comprehensive, but very good. I am glad that there is a game plan and I appreciate the level of detail. I think it helps not only the members of this committee but staff as well to follow it accordingly.

Mr. SUITER. Your committee, your staff has been extremely helpful in working with us prior to this hearing. We had sit-down sessions, and there has been good advice both from this body and the other body, and we thank you very much.

Mr. FOSSELLA. You are welcome.

Mr. SUITER. A class act.

Mr. FOSSELLA. We have an excellent staff here, is right. And, lastly, if there is a computer failure, widespread, will FEMA be able to respond to an event?

Mr. SUITER. We have 49 systems, mission critical systems. Fortunately for us, we were in the process of building a new one which came on-line October 1st. Of our 49 systems, 41 are mission compliant, 5 are being replaced and 3 are being repaired. So, yes, we will be on line by December.

Mr. FOSSELA. Great.

Mr. SUITER. Of this year.

Mr. FOSSELLA. Finally, Mr. D'Aniello, in your written statement you state that the Corps' hydropower facilities can be operated manually. Do you anticipate using manual operations on January 1, 2000?

Mr. D'ANIELLO. At this point, as we have checked that, we anticipate that systems are going to be tested to the point where we won't have to operate manually, but in the event that we do, we can use that. I think in that regard, the key area is going to be in the communication area, as Ms. Bunch has added, communication with all the individuals that provide power into the grid, to make sure that that goes smoothly. We have contingency plans in place to be able to deal with that, but I think the communication aspect is going to be key in that regard.

Mr. FOSSELLA. Can you explain some of those contingency plans?

Mr. D'ANIELLO. From the standpoint of the contingencies with regard to communications, we deal with that on a case-by-case basis as we lose communication and power right now. Those are being assessed as we speak.

Mr. FOSSELLA. So it at this point you don't anticipate reverting back to a manual operation?

Mr. D'ANIELLO. No, we do not.

Mr. FOSSELLA. If the power does go out, any idea as to how long you can operate your locks or dams and water control systems on backup power?

Mr. D'ANIELLO. As far as the locks and dams, we have generator-operated capability that is limited to the fuel we have, and we are certainly making contingency plans to have extra fuel available. I can't give you a specific amount, but certainly the supply is going to be capable of extended operation of those facilities. Similar to other areas where we have unmanned situations, locks and dams are going to be manned and specific requirements for power generation will be fully met.

Mr. FOSSELLA. At those unmanned locations, how long do you expect to have personnel stationed at those unmanned locations?

Mr. D'ANIELLO. At this point, as long as necessary, and until we are assured that those facilities are operating and we don't have a problem.

Mr. FOSSELLA. Do you have any idea as to whether that is a week or a month or several months or a year?

Mr. D'ANIELLO. At this point in time, although no system has been tested, we would anticipate it would be very short, if anything at all.

Mr. FOSSELLA. Sure. Okay. And are you confident, and I know I am asking the same question, that the power grid will remain in service during the first few days in the Year 2000?

Mr. D'ANIELLO. Yes, we are.

Mr. FOSSELLA. And how much, finally, how much have you spent on the Y2K efforts so far and what do you expect?

Mr. D'ANIELLO. Very specifically, the dollar value that I gave you is $3.5 million. However, we have been upgrading certain things over the last couple of years, since '96 when we started our Y2K efforts, and have spent money in replacing computer systems. We feel that many of those dollars would have been spent for some of those upgrades anyway. But $3.5 million is what we have noted and earmarked as specifically related to Y2K.

Mr. FOSSELLA. So there are no projections to spend any more money between now and the end of 1999?

Mr. D'ANIELLO. About $3.5 million dollars, that is what we have spent and anticipate spending at this point.

Mr. FOSSELA. And where did that money come from? Am I hearing that you would have spent that money anyway, so it is not dedicated solely to the Y2K effort?

Mr. D'ANIELLO. The $3.5 million has come out of our normal operating budget. It is not a significantly large amount compared to our overall budget.

Mr. FOSSELLA. Being that there are no other Members present, I want to thank each of you for coming here today and for your complete and forthright testimony. And thank the staff for putting this hearing together. With that, adjourned.

[Whereupon, at 1:05 p.m., the committee was adjourned.]

PREPARED STATEMENTS SUBMITTED BY WITNESSES

BEFORE THE HOUSE COMMITTEE ON

TRANSPORTATION AND INFRASTRUCTURE

ORAL TESTIMONY OF
C. JONATHAN BENNER

THE INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS ("INTERTANKO")

7 OCTOBER 1998
WASHINGTON, D.C.

C. Jonathan Benner
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My name is name is Jonathan Benner. I am appearing today on behalf of the International Association of Independent Tanker Owners ("INTERTANKO"). INTERTANKO consists of approximately 300 tanker owners and operators and another 300 related organizations around the world. The INTERTANKO fleet is comprised of approximately 2000 tank vessels. We estimate that roughly 70 percent of all the petroleum and petroleum products imported by the United States are carried by INTERTANKO.

My testimony here today focuses on issues that are peculiar to the safe operation of vessels. INTERTANKO commends the Committee for its attention to the so-called "Y2K" issue. Like every other industrial sector, the maritime community faces significant potential for business disruption as a result of the Y2K problem. Like other sectors of the maritime industry, the tanker sector which I represent through INTERTANKO has developed action plans intended to identify vulnerabilities and to put in place hardware, software and procedures that will avoid adverse impacts. The major difficulty we face with Y2K is that it is easy to see the potential for harm, but it is very difficult to know whether the impacts will be as dire as some predict. The only prudent course is to be as thorough as possible through the potential snarls while at the same time methodically replacing systems' elements that might be vulnerable.

The Y2K issue is of particular concern to tanker owners because of their commitment to and responsibility for the safe operation of vessels and the avoidance of casualties that could result in the loss of human life and the despoliation of the marine environment. The tanker industry has made tremendous strides in the last 15 years through industry-driven reforms toward eliminating mechanical fault and human error. Much of this progress has come from revisions of training and operating regimes. We have explored changes in vessel design construction and procedures. The spill response capabilities of most major maritime nations, including the United States have increased dramatically in the last 10 years.

Under U.S. law, tremendous liability attaches to the owner or operator of the tanker when oil spills. This liability initially rests with the tanker owner regardless of the actions of other players in the marine transportation chain. INTERTANKO has encouraged its members to promote attention to all links in what we call the "chain of responsibility." This chain includes not only the tanker owner but government agencies responsible for marine safety and waterways management, insurers, charterers, pilots, classes, societies, terminal operators, and the salvage industry. A single point failure at any link of this chain can be catastrophic to life and to the marine environment.

The Y2K issue raises another "chain" metaphor. Modern vessels, like modern aircraft, depend on an intricate series of sensors, monitors, and activators that are in turn linked to the operation of many systems that navigate, propel, steer and monitor a ship. This chain can be extremely intricate. It has many small links, many of its links are obscured from ready view beneath other system elements and, like the very visible components of chain of responsibility, a failure at any point in this chain can expose the vessel, its crew and its cargo to serious danger.

I would like to be able to tell the Committee that the marine industry has found an elegant solution to its Y2K problem. I cannot do so. Unfortunately this is a situation that, despite its high-tech origin, requires decidedly low-tech values in order to be countered. Good organization practices, thoroughness, and attention to detail are the ways the maritime industry, like every other industry, will avoid catastrophic impact from this potentially dangerous issue.

The primary concern for mariners and internal management is to identify accurately the sources of exposure. Our member companies and their consultants have spent untold hours locating system software and equipment that are potentially affected by Y2K. We have accompanied this inventory approach with the establishment of new and different relationships with vendors and consultants. Tanker owning companies face precisely the same kinds of concerns about Y2K as any other business concern with regard to the internal management of their companies. However, I believe these issues are well appreciated by the Committee and will be well covered by other witnesses. However, I believe these issues are well appreciated by the Committee and will be well covered by other witnesses. It is the search for vulnerabilities aboard the ship and in closely related systems that is the focus of this testimony.

It has been estimated that a typical tank vessel may contain between 50 and 200 micro-processors. A review by one major tanker company is reported to have found around 20 per cent Y2K non-compliance in its survey of chips aboard its fleet. As you might expect, systems controlled by Y2K-vulnerable micro-processors include the following:

- navigational systems
- telecommunication systems
- real time process controls such as engine room and cargo monitoring systems
- strength and stability monitors
- alarm systems

Within our industry, there have already been reports of documented Y2K failures of ship main control, radar mapping, ballast monitoring, cargo loading, engine room vibration, and ship performance monitoring systems. None of these failure to date has resulted in major losses and some were intentionally induced as part of Y2K assessment procedures.

As has been the case with other industrial sectors, the identification of Y2K problems and their fix has been enormously expensive. About 80 per cent of the costs incurred to date have arisen in the equipment and chip replacement area.

We are concerned about problems that may occur at the links between different sectors of our industry. A tanker company may successfully resolve its Y2K problems, but find that a terminal cannot load or receive a cargo discharge. Aids to navigation and vessel traffic control systems could be affected in ways that will adversely impact our abilities to navigate safely. I cite these examples to indicate that there will be no partial victories in the race to identify and resolve Y2K problems. We will only succeed if everyone in every sector succeeds.

A derivative problem to the technical challenge of becoming Y2K compliant is the liability issue for damages attributable to Y2K. The international marine industry depends heavily on a sophisticated global network of insurance resources and on legal regimes that recognize limited liability for shipowners in many casualty contexts. Y2K confronts owners with possible loss of insurance coverage, breach of warranties and class requirements, and broken liability limits should their efforts at solution fail. Most of the circumstances in the past that would trigger these financial penalties arise from wilful or reckless conduct by the shipowner. Y2K is insidious, complex, and extremely difficult to root out. Most industries, including the maritime industry, are making good faith efforts to resolve the problem. But we won't know until early in the year 2000 how well we have done. If there is a major spate of costly damages caused by Y2K, the absence of insurance cover and the complex debates over fault that will ensue could have significant negative consequences for the world's economy.

The maritime industry recognizes that this is a problem that cannot be solved by technicians and consultants alone. In most of our member companies, the matter is receiving attention at the highest level. We are receiving both incentives and prods from insurers, class societies, flag state authorities and port state control authorities. Every one of these entities not only is trying to make sure that vessel owners meet this challenge, but must at the same time see to its own Y2K needs. INTERTANKO notes that the U.S. Coast Guard has provided an excellent outreach and public awareness program to the industry. They have provided the industry with an information resource and a stimulus to be thorough in our systems review. Communications between industry and maritime authorities around the world have, on this subject, generally been positive and open. For better or worse, industry and government are equally afflicted by potential problems of Y2K. We are truly all in this together. INTERTANKO appreciates the attention that this Committee has brought to the problem.

I will be pleased to answer any questions that the Committee may have.

TESTIMONY OF

DIANE J. BUNCH

MANAGER, ENTERPRISE OPERATIONS
INFORMATION SERVICES
TENNESSEE VALLEY AUTHORITY

BEFORE THE
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

OCTOBER 7, 1998

Thank you, Mr. Chairman and Members of the Committee, for this opportunity to testify on the subject of "Y2K: Will We Get There On Time?"

In 1996, the TVA Board of Directors tasked Information Services with ensuring that TVA would be able to meet its responsibility of providing electricity to the 8 million ultimate customers on and after January 1, 2000. Information Services embarked on an aggressive program of assessing TVA's exposure, identifying necessary activities, and testing TVA's systems.

We discovered almost immediately that TVA's many links to state and local entities, major utilities, and suppliers required a significant outreach and coordination effort. We also discovered a wide range of Y2K compliance among these "partners."

TVA's Y2K efforts fall into three categories: (1) internal compliance; (2) assistance and coordination with partners; and (3) coordination with the North American Electric Reliability Council (NERC).

DESCRIPTION OF TVA

TVA is the largest public electric power system in the United States, producing nearly 153 billion kilowatt-hours of electricity in 1997. TVA is a wholly owned corporate agency and instrumentality of the United States, established by Congress in 1933 with the objective of developing and managing the resources of the Tennessee Valley region to strengthen the regional and national economy and the national defense.

TVA is primarily a wholesaler of power. Its customers are composed of three major groups: (1) 159 distributors, consisting of municipal and cooperative systems; (2) 60 industries that have large loads; and (3) 8 federal agencies.

TVA supplies the energy needs of approximately 8 million people in a power service area covering 80,000 square miles in the Southeastern United States, including most of Tennessee and parts of Mississippi, Kentucky, Alabama, Georgia, North Carolina, and Virginia. TVA also manages the Tennessee River, the nation's fifth largest river system, for flood control, navigation, power production, and navigation.

TVA operates and maintains 28,417 megawatts of generating capacity and 17,000 miles of transmission lines. TVA generation assets include 11 Fossil Plants (59 units), 3 Nuclear Plants (5 units), 29 Hydro Plants (109 units), 4 Combustion Turbine Plants (48 units), and 1 Pumped Storage Plant (4 units). TVA moves power through its transmission system to wholesale customers, directly-served customers, and interconnected utilities. TVA also exchanges power with 14 neighboring utilities.

INTERNAL COMPLIANCE EFFORTS

TVA has a Y2K readiness program that includes both its Power and Non-Power programs. The program is staffed by a dedicated Y2K Project Office manager, 10 program area managers, and a host of information technology and line of business subject area experts. Executive level management including the Board of Directors, the Chief Operating Officer, the Chief Administrative Officer, Senior VP, Transmission and Power Supply, and the Chief Information Officer receive regular updates on progress against goals.

TVA expects to spend approximately $37 million for Y2K remediation. The 5-year total project forecast is included below.

Fiscal Year	1996	1997	1998	1999	2000	Total
Cost in Millions	$2.28	$4.57	$11.87	$16.66	$1.66	$37.04

TVA is participating at the national, regional, and industry levels to prepare for a smooth transition into the 21st century. Through the NERC, TVA is working with other regional utilities to share information and develop contingency operating plans for uninterrupted power system operation. In addition to oversight from the NERC, TVA is reporting quarterly status to the Office of Management and Budget and has just completed an onsite assessment by the General Accounting Office. The Nuclear Regulatory Committee will conduct an onsite review in November. In addition to government oversight, TVA has initiated self-evaluations by consultants from the Gartner Group and Booz•Allen and Hamilton to identify any opportunities to improve and strengthen our program.

From its inception in April 1996, TVA's Y2K internal compliance program mission has been to fix all mission-critical components prior to December 31, 1999. Like most other organizations, we have an internal goal to complete a majority of the work by December 31, 1998, and spend calendar year 1999 in validation testing and risk management planning. We are using a phased approach to inventory, assess, remediate, and test all mission-critical components—including embedded chips. Our inventory and assessment phases are complete for all internal components, and remediation and testing are under way in all ten program areas. The inventory of our external business partners has been completed and assessment is under way.

TVA has chosen to track program progress at the closure level. Closures are defined as fixed, verified, documented, and signed off. Tracking at this level leaves little room for confusion about where we stand. We are tracking closure on 21,523 critical items and as of September 1998, forty-eight (48) percent of those items have been closed.

TVA will begin integrated power system testing this fall and will continue that process in and around established maintenance schedules through the spring of 1999. We also plan to participate in one local and two regional and national readiness drills proposed and coordinated by the NERC.

WORKING WITH TVA'S PARTNERS

As a wholesaler of electric power, TVA is actively participating with its cooperative and municipal distributors, directly-served customers, and the interconnecting utilities to develop a comprehensive set of operating, restoration, and emergency preparedness plans to mitigate the risk of service interruptions. Our contingency planning efforts and readiness drills will also include state and local governments as well as other emergency preparedness organizations.

TVA is working with its external business partners to reduce the possibility that a Y2K problem in some other part of the supply chain does not impact TVA's ability to produce and deliver power. We have reviewed and prioritized our mission-critical suppliers, customers, and vendors. Approximately 2,300 business entities have been asked to verify their Y2K readiness. Any evidence of lack of readiness will be followed by special contingency arrangements.

We are participating with a number of electric utility industry groups to share information and build upon the experiences of others. Currently, we are working with the Electric Power Research Institute, the Nuclear Engineering Institute, and the Nuclear Utility Software Management Group. We have also participated in a number of distributor communication forums sponsored by our Customer Service and Marketing organization to share our Y2K experiences with our customers. Most recently, TVA co-sponsored and participated in panel discussions during the Countdown to '00 Summit sponsored by Congressman Bob Clement.

As Y2K approaches, TVA will continue to keep its oversight agencies, business partners, customers, and the public informed about Y2K plans and progress through our Internet home page, planned news releases, and media events.

COORDINATION WITH THE NERC

In early May 1998, the Department of Energy turned to the NERC to coordinate Y2K preparations in the electric industry, asking for NERC's "assistance in assessing whether the Nation's electricity sector is adequately prepared to address the upcoming year 2000 computer problem". NERC is a voluntary not-for-profit industry organization made up of ten Regional Reliability Councils. NERC and its ten Regions account for nearly every bulk electric supply and delivery organization in the Interconnections of North America.

NERC and its Regional Reliability Councils set operating and engineering standards for the reliability of electric systems in North America. The implementation of these standards has resulted in a quality of electric service unequaled in the world. Representation in NERC and its Regions includes all segments of the electric industry: investor-owned, federal agency, rural electric cooperative, state/municipal, and provincially owned utilities, independent power producers, and power marketers.

TVA's transmission system is part of the Eastern Interconnection. The electric transmission systems of North America are tightly connected into three major electrical Interconnections otherwise known as "grids." All of the generators in each Interconnection are connected electrically and operate together as a single large interconnected "machine." The largest of these grids, the Eastern Interconnection, covers the eastern two-thirds of the U.S. and eastern Canada.

Each of the three major Interconnections is a highly connected electrical network. A major disturbance within an Interconnection can have an immediate effect throughout the Interconnection. This high level of interdependence within an Interconnection means that the strength of the overall system may only be as strong as the weakest link. It also means that electric systems depend on each other for help during critical periods. This interdependence implies that an individualistic approach to the challenges of Y2K may leave gaps in efforts to prevent adverse effects to operations within an Interconnection.

NERC's first assessment report was issued on September 17, 1998, and it summarized the magnitude of the problem and how NERC plans to mobilize the necessary cooperation from the Regional Reliability Councils, their members' utilities, and other industry organizations to develop and implement a process that will ensure that the nation's electric infrastructure will be ready to operate into the Y2K. The report identified about 3,200 organizations in North America that could be considered part of the electricity supply and delivery chain.

Participating on a NERC-wide Task Force, TVA is developing an operating strategy and plan for coordinated electric system power supply and delivery systems operation within North America during the Y2K transition period. The goal is to mitigate potential operating risks in order to achieve reliable and sustained electric system operation during the transition into the Y2K and beyond. Its focus is to 1) maximize the stability of grid operations, 2) contain any generator or component outages to the local area (i.e., prevention of widespread outages), 3) ensure multiple channels of communications and common protocols between security coordinators, control areas, plants, crews, customers, and emergency centers, and 4) ensure restoration plans are in place and tested prior to the Y2K transition.

The process of preparing electric systems for operation during critical Y2K transition periods is being coordinated at several levels. At the interconnection level, NERC is coordinating contingency planning through the Y2K Contingency Planning and Preparations Task Force reporting to the Board of Trustees through the Operating Committee and the Security Coordinator Subcommittee. At the regional level, TVA participates within the Southeastern Electric Reliability Council's effort to gather and share critical system information on inventory, testing, and mitigation of mission-essential components.

At the subregional or TVA level, TVA and its Power Distributors are exchanging information through the Tennessee Valley Public Power Association (TVPPA) Planning and Coordination Committee. The TVPPA is an association comprised of TVA's 159 power distributors. TVPPA will also help facilitate the upcoming TVA and NERC interconnection wide drills on Y2K operations. The internal TVA and TVPPA drill will occur in November 1998. The two NERC-wide drills will occur in April and September 1999. Both NERC-wide drills will include full TVA and TVPPA participation.

Y2K CONTINGENCY PLANNING

The following steps outline the process that TVA is using for Y2K contingency planning development through its involvement in NERC.

Step 1 - Identify Y2K Operating Risk

Step one consists of identification of sources of risks, both internal (plants, control systems, etc.) and external (telephone, rail systems, etc.) that may impact the capability to sustain reliable operations into the Y2K and beyond. For each risk source, we are identifying the probability level and consequences of possible failures. We anticipate having much better data on the probability and consequences of plant component failure after this fall when many utilities will have completed Y2K system tests on their generating units. Additional complete system tests will be made by TVA and other utilities during the subsequent spring 1999 generating unit maintenance outages.

Step 2 - Conduct Scenario Analysis
The Y2K Contingency Planning and Preparations Task Force is in the process of identifying representative *more probable scenarios* and representative *Credible Worst-Case Scenarios.* Each scenario will be a grouping of finite contingencies (unit, plant, substation, control system, or communication system events) that operators need to be prepared for during the Y2K transition period. These scenarios will be analyzed via a combination of tabletop and computerized studies. They will also play an important role in the drills conducted NERC-wide during April and September 1999.

Step 3 - Develop Risk Management Strategies
These are the mitigation strategies for the most likely scenarios defined in Step 2 above. Risk Management Strategies may include the use of additional staff resources at plants, control centers, substations, large industrial loads, interconnection meters, etc.; additional equipment and facilities on line; increased alert status; reduced interchange transactions permitted across the grid; special operating procedures; and others.

Step 4 - General Preparations
This step includes efforts to prepare for and implement Risk Management Strategies identified in Step 3. Preparations include development of special procedures; conducting training and drills; procurement, installation, and testing of backup capabilities (e.g., radios); review and adaptation of restoration plans for Y2K conditions; and overall readiness enhancements.

Step 5 - Power System Operation Planning
System studies will be performed based on the scenarios identified in Step 2 to determine appropriate reserve requirements, commitment of generation and transmission facilities, special system operating limitations, and operating strategies. The outcome of this step is the Y2K System Operating Plan. It will be drafted prior to the first NERC-wide Y2K drill. It will be finalized after the last NERC-wide Y2K drill. TVA and the TVPPA Emergency Team will participate in both drills.

Step 6 - Implementation of Y2K System Operating Plan
The Y2K System Operating Plan will be implemented in the final days and weeks leading up to the critical transition period. The 23 NERC Security Coordinators will be the key command and control focal points as they have responsibility for system security of their grid area. TVA is one of the 23 NERC Security Coordinators. This step consists of the commitment, scheduling, and management of resources according to the operations plan. It also includes monitoring system conditions and responding to conditions according to contingency response plans—up to and including system recovery and restoration plans.

CONCLUSION

In summary, TVA is taking the Y2K issue very seriously. We have a multi-faceted, proactive program supported by top management. We are aggressively cooperating with others in the industry to identify and manage risks in order to mitigate service interruptions. We fully expect to uphold the industry's 30-year history of providing reliable power to the nation. At TVA, we are doing everything within our ability to ensure the continuation of electric service in the Tennessee Valley.

ASSOCIATION OF METROPOLITAN WATER AGENCIES

Association of Metropolitan Water Agencies
Statement Before the
Committee on Transportation and Infrastructure
U.S. House of Representatives
on the
Year 2000 Compliance by Large Drinking Water Suppliers

October 7, 1998

Presented by

John Robert Carman

Water Quality Manager

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Association of Metropolitan Water Agencies

**Statement Before the
Committee on Transportation and Infrastructure
U.S. House of Representatives
on the
Year 2000 Compliance by Large Drinking Water Suppliers**

October 7, 1998

Good day, my name is John Carman. I'm the Water Quality Manager for the Metropolitan Water District of Salt Lake City. I am testifying on behalf of the Association of Metropolitan Water Agencies (AMWA), of which my utility is a member.

The Metropolitan Water District of Salt Lake City (MWDSLC) operates and maintains raw water transmission, treatment and finished water distribution facilities in three counties in Utah. Serving water on a wholesale basis to our member cities, it has been estimated that our facilities serve a population equivalent of 325,000 people. It has also been estimated that our water can reach as many as 1,000,000 people at some point during the year.

The Association of Metropolitan Water Agencies is comprised of the nation's largest publicly owned water suppliers, and each member agency is represented by the Commissioner, Director, or General Manager. AMWA members represent a considerable share of large systems in the United States, with each serving at least 150,000 consumers and our largest member serving 16 million people. Altogether, AMWA members serve over 100 million people with clean, safe drinking water.

Introduction

In addition to complying with dozens of state and federal requirements mandated by the Safe Drinking Water Act, the nation's water suppliers have been confronted with potential hazards posed by year 2000 technology problems. Nevertheless, a majority of water systems, especially those systems that serve large concentrated populations appear to be prepared to meet the challenge.

To evaluate year 2000 compliance, it is important to understand the make up of the drinking water community:

- Our nation of 247 million people is served by 55,427 community water systems.
- Fourteen percent of these are medium to very large systems serving large concentrations of consumers. Collectively they serve nearly 222 million or 90 percent of the nation.
- Conversely, there are approximately 49,000 small and very small systems serving small concentrations of people. Collectively, these only serve 34 million people or 10 percent of the nation.

Year 2000 Compliance of Large Systems

AMWA, the American Water Works Association (AWWA), and the National Association of Water Companies (NAWC) conducted a joint survey over the last several months. The survey includes respondents ranging in system size from very small to very large. This section of our testimony will discuss the survey results for systems serving over 100,000 customers. A large portion of AMWA's members responded to survey. Therefore we are confident that the statistical base of the survey is adequate enough to accurately portray the year 2000 compliance status of large systems. In addition, we are able to corroborate the survey with first-hand experience, as AMWA has provided a forum for year 2000 managers to share information.

According to the joint association survey, systems serving between 100,000 or more consumers appear to be well on their way to compliance, and many have already reached that point. In this effort, most very large systems (serving over 1 million people) will spend over $1 million. Most large systems (serving 100,000 to 1 million people) will spend at least $100,000 and one-quarter will spend over $1 million. Below are the conclusions from the survey.

- **Y2K Plans.** 100% of very large systems have formal year 2000 compliance plans; 89% of large systems have such plans.

- **Utility Assessments.** 100% of very large systems have completed utility-wide assessments; 63% of large systems have completed such assessments.
- **Risk Assessments.** 100% of very large systems have completed risk assessments to identify all critical applications; 65% of large systems have completed such assessments.
- **Internal Planning.** 100% of very large systems are confident that internal year 2000 planning, implementation and testing will be completed in time; 89% of large systems are similarly confident.
- **External Planning**. 90% of very large systems are confident that all external year 2000 planning, implementation and testing will be completed in time; 67% of large systems are similarly confident.

Given this degree of preparedness, the committee should feel secure that an overwhelming majority of consumers will not be affected significantly by internal year 2000 compliance problems. Large water systems have made a substantial investment in compliance and have employed sophisticated measures to ensure that their customers are protected.

Large water suppliers recognize the potential affects of a year 2000-related failure, and consequently, they have prepared themselves to avoid such failures. We are, however, concerned about reliable transportation, electric and telecommunication services. As the survey shows, many large and very large systems have investigated these external factors, but they are left to rely on the assurances of these service providers. One thing is certain, though. If a transportation, power or telecommunication network fails, water suppliers hope that we are at the top of the list for restoring services.

Y2K Education

Each water system is responsible for its own year 2000 compliance, as each system is unique, but the national water associations like AMWA have provided materials to water suppliers to help them become compliant. AMWA has an Internet-based Y2K assistance program. The site:

- explains the problem and how it should be addressed,
- recommends a program to document compliance efforts,
- provides a wide-ranging compliance check list,
- offers guidance on assessment and testing,
- encourages systems to develop contingency plans.

AMWA's well advertised website attracts thousands of web surfers, including our own membership, other large and small water suppliers, EPA, States, and consultants. Through our efforts and those of others, we are confident that all AMWA members are well aware of potential year 2000 problems and have access to compliance assistance if they need it.

Likewise, other water associations have Y2K education plans. However, several thousand water suppliers, mostly small and medium, do not belong to water associations. To reach these suppliers, the burden falls on EPA and States to distribute information to help those system's become compliant.

Contingency Plans

While the level of compliance for large systems is high, these systems are also preparing for contingencies. The most common contingency involves operating the treatment plant and distribution system manually, as water supply technology lends itself to that option. In addition, water suppliers plan to have full storage tanks as the year 2000 closes in, and an extra supply of fuel and treatment chemicals on hand.

Enforcement of Drinking Water Regulations

Reportedly, EPA's Office of Compliance and Enforcement and the Department of Justice are developing a policy to govern enforcement of drinking water regulations if violations occur due to year 2000 problems. Water suppliers have not been invited to see the draft policy or offer our comments on the subject.

Water suppliers recognize that year 2000 technology problems could lead to violations of drinking water regulations, though we believe this will be unlikely for the vast majority of systems. To avoid distributing water in violation of regulations, in case of emergency, a system would likely temporarily shut down and turn to stored water. More commonly, as noted above, systems will operate in manual mode. Nevertheless, unforeseen circumstances could arise in spite of a water supplier's due diligence.

Violations of reporting requirements concern us as well. Water suppliers report monitoring data to the States and the States, in turn, send the information to EPA. All of this is done electronically. If there is a glitch in one computer at any point in the chain, the information may not be recorded properly and a violation would occur.

AMWA encourages the EPA and the Justice Department to develop a fair process to evaluate violations related to year 2000 technology problems. The process should include, at least, an investigatory phase to determine the exact nature of violations, a due diligence standard, and an opportunity for water suppliers to formally respond to enforcement actions.

We further encourage DOJ and EPA to share enforcement proposals with water suppliers and allow us an opportunity to comment. We also recommend that the committee review the proposals they are drafting.

The Metropolitan Water District of Salt Lake City

Our work on the year 2000 compliance issue began in February 1998. The District prepared a simple plan for finding and resolving all potential year 2000 problems. This plan has five primary components:

1. **Inventory.** Conduct an inventory of all potentially affected hardware and software.
2. **Assessment/Testing.** Prioritize the inventory; test mission critical items first.
3. **External Suppliers.** List external suppliers and vendors; seek written statements of Year 2000 compliance.
4. **Repair/Replace.** Based on results of assessment and testing phase, make repair or replace decisions.
5. **Contingency Plan.** Develop a contingency plan to address unknown or unforeseen problems.

District management set a simple goal for our Y2K program: do whatever it takes to avoid interruption of service.

The inventory phase of our program is now complete. We have initiated the assessment and testing phase of our program concurrently with a review of external suppliers. The initial inventory revealed only about 150 items that are potentially affected. Of these, less than 20 are considered likely to be affected.

The primary areas of concern for MWDSLC with respect to the Y2K issue are as follows:

1. Treatment chemical supply.
2. Automated control systems/embedded processors.
3. Gas and power supply.
4. Communications.

These concerns are common among large water utilities, although many of the larger water utilities with retail operations have additional concerns in the areas of billing systems, maintenance management systems, and similar areas.

For our district, chemical supply availability is a primary concern. Some of the chemicals we depend on are shipped via the railways. Rail transportation problems could have a significant impact on our ability to operate. In the worst case scenario, we can operate from chemical inventory for 30 days on all process chemicals except chlorine. We have historically avoided stockpiling chlorine in large quantities due to its hazardous properties. Our chemical vendor assures us that a limited alternative supply of chlorine is available which does not utilize the railroad for transportation. For contingency planning purposes, we believe that we can operate for approximately 21 days without restocking our chlorine.

In 1993, the Little Cottonwood Water Plant -- our main plant -- was equipped with an automated control system. While this system has improved plant performance significantly, it is important to note that the plant was operated manually for 33 years prior to the automation project. This manual functionality still exists and represents the backbone of our contingency plan. The overwhelming majority of water treatment plants in this country were built prior to the computer era. Design requirements for water systems in Utah specify manual control capability for all new systems as well.

Interruption of gas and power supply is a major concern for many large water utilities. From an internal perspective, we are capable of running for 17 days on backup power before the need to refuel the generator. Interruption of gas supply can be survived for approximately 30 days utilizing our diesel boiler to heat the facilities. Many of the facilities we have added for earthquake preparedness have proven useful for Y2K contingency planning. We are concerned about the potential external impacts of problems with the power supply. For example, there are several sewage lift stations operating in our watershed. If the lift stations are off line for a few hours, sewage overflows can contaminate our raw water supply.

Communications are a concern for most large utilities in emergency situations. For voice communications we have landline telephones, cellular telephones and two-way radio capability. In our system, data is transmitted from remote sites through a radio telemetry system. Power supply interruptions at our remote sites will cause loss of data and require site visits for simple things like reservoir level measurements. Communication system interruptions will be a much bigger problem for water utilities with remote telemetry systems dependent on the telephone system.

Conclusion

MWDSLC is currently estimating that hardware and software costs will range from $10,000 to $20,000. Many hours of staff time will also be expended working on this problem. The good news is that January 1, 2000 occurs in the winter time when production levels are at their lowest. This extends the amount of time we can operate without depending on outside suppliers.

The bulk of the nation's large water suppliers are following similar year 2000 compliance plans and will spend significant funds and staff time to ensure that water consumers will continue to receive uninterupted service and high quality drinking water.

I sincerely appreciate the opportunity to be here today, and I would be pleased to address any particular questions or concerns you might have.

COMPLETE STATEMENT OF

JOHN P. D'ANIELLO
DEPUTY DIRECTOR OF CIVIL WORKS
U.S. ARMY CORPS OF ENGINEERS

BEFORE THE
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
AND THE
TASK FORCE ON Y2K
UNITED STATES HOUSE OF REPRESENTATIVES

YEAR 2000 PROBLEM

WASHINGTON, D.C.
OCTOBER 7, 1998

CHAIRMAN SHUSTER, CHAIRMAN HORN, CHAIRWOMAN MORELLA, AND MEMBERS OF THE COMMITTEE AND TASK FORCE:

INTRODUCTION

I am John D'Aniello, Deputy Director of Civil Works, U.S. Army Corps of Engineers. I am responsible for coordinating the Year 2000 (Y2K) problem within the Corps Civil Works Directorate. Accompanying me today is Mr. Edward Huempfner, Acting Director of Information Management and the Corps Program Manager for Y2K Compliance. We appreciate the opportunity to discuss the Corps experience with addressing the Y2K problem.

As a major command of the Department of the Army (DA), the Corps has been actively following the Secretary of the Army's lead in working the Y2K issue since 1996. Command guidance issued by the Secretary in March 1997 directed that "each Army organization responsible for system development and maintenance should ensure that Y2K is a high systems resource priority..." and that "... effective immediately, all nonessential sustainment requirements and enhancements will be postponed until systems have been analyzed, fixed, tested, and certified Y2K compliant using existing resources." We have fully recognized that Y2K poses a tremendous near term challenge to the Army, the Department of Defense, the Nation, and the world. We have realized that to be successful in correcting Y2K issues and managing the effort, adequate resources must be dedicated, and senior level managers must be personally involved. Within Army, Y2K is not considered an "extra duty." Current Army policy, as contained in our Y2K Action Plan, requires certification of all systems and devices to ensure that we either do not have a problem, or that if there is a problem, it is fixed and tested.

CORPS MANAGEMENT ACTIONS

The Corps began its Y2K efforts by conducting an inventory of our information systems. Working under the Department of the Army's Y2K program, our activity level has been ever-increasing. A key management action was the Chief of Engineers' designation of the Chief Information Officer (CIO) of the Corps to be the agency's Program Manager for Year 2000 compliance. In carrying out this assignment, the CIO has been responsible for the following:

- Development, promulgation, and measurement of adherence to Y2K specific contracting guidance for both new and ongoing project actions, as well as recurrent surveys to determine whether the Project Managers are testing for Y2K compliance as they would any other performance requirement,
- Recognition, assessment, and repair/contingency planning for mitigation of the risk of Y2K compromise at any of the Corps civil works infrastructure and for civil works business process, e.g., water control, maintenance of navigable waterways, hydropower, and emergency operations response,
- Recognition of the vulnerability to Y2K failures of our overall information systems/information technology (IS/IT) infrastructure, e.g. office automation, telecommunications, radios, laboratory instrumentation, geographic information systems and global positioning systems equipment and software, assessment of risk, and renovation/contingency planning as necessary,
- Monitoring leaseholds for all Corps leased facilities, and mitigation of impact on Corps personnel in leased facilities,
- Continuity of operations planning and coordination with all of our information partners, i.e. Federal, State, local, and private,
- Guidance and assistance to our Center for Public Works contingents, and
- Informing former foreign and domestic customers of possible Y2K vulnerabilities in facilities we constructed for their use.

As part of our Year 2000 mission preparedness effort, the Corps is actively cooperating and coordinating with various working groups of the President's Council on the Year 2000 Conversion. Direct Corps participation is occurring on the Energy Working Group under the Department of Energy's (DOE) leadership and the Emergency Management / Fire and Emergency Services Working Group under the Federal Emergency Management Agency's leadership. Collaboration with our colleagues in other organizations and departments, such as the Coast Guard, DOE, the various Power Marketing Administrations, and others at the state and local level has been invaluable.

Within the Corps, Y2K problems have been categorized as information systems / information technology problems, intelligent building problems, and mission infrastructure problems. Within these categories we further focus in on the criticality of the component in question. Each of these categories is being addressed through a DOD-wide five-step process, which includes awareness, assessment, renovation, validation, and implementation. The following sections present the status of plan implementation for each of the three categories of problems.

INFORMATION SYSTEMS / INFORMATION TECHNOLOGY

For the purposes of Y2K, information systems/technology includes personal computers, servers, commercial off-the-shelf software, routers, brouters, gateways, hubs, and office equipment, such as fax machines.

Information Systems

Potential losses within the Corps arena due to significant information systems (IS) failures, internal and external to the Corps, would be in the billions of dollars nationwide if unaddressed. The Corps completed its initial IS inventory in 1996. Of the 206 systems in initial inventory, 94 were reported compliant, 77 were scheduled to be retired, and 35 were scheduled for repair. Eleven systems met the criteria for upward reporting to DA, i.e. mission critical with an investment at least $2 million. Of these systems, the Construction Appropriations Control and Execution System (CAPCES) and the Department of Defense Form 1391 Processor Systems (DD1390/91), both under the program and execution umbrella, and the Corps of Engineers Financial Management System (CEFMS) were initially reported as noncompliant. All three systems are compliant at this time, and the Department of Defense-required checklists are being signed in preparation to forwarding to the DA Program Management Office.

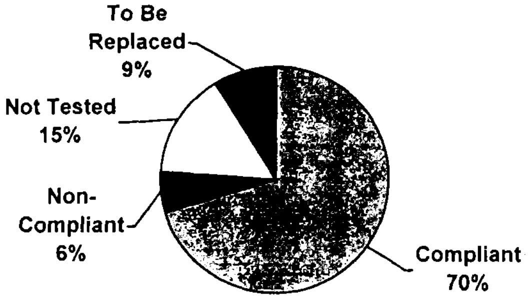
Information Technology

Information technology (IT) spans the gamut from desktop computers (approximately 26,000 units to be inspected) to laptop computers (approximately 3,200 units within the Corps to be inspected) to local area network (LAN) servers (1965 units within the Corps to be inspected) to the Corps of Engineers Automation Program. The impact of potential problems spans our civil works mission (computers on floating plant, Supervisory Control And Data Acquisition systems, power generation management and control, and water control) and our military mission (construction management at camps-posts-stations).

The Corps began its awareness efforts with a command advisory in April 1996. We are nearing the end of our assessment/renovation/replacement process. Following the Department of the Army's lead, the Corps has licensed software technology for remediating a large portion of our noncompliant IT and is actively patching such units as they are identified. To date, over 1500 units have been identified and patched.

The status of IS/IT activities is shown in Figure 1.

Figure 1.
Information Systems/Information Technology

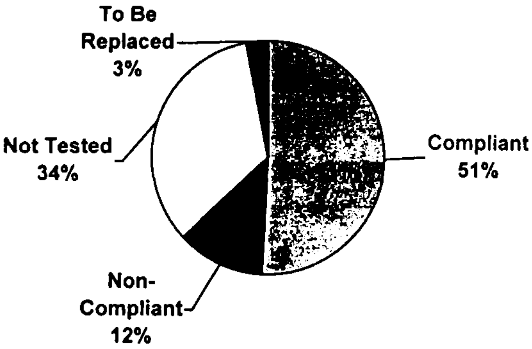


INTELLIGENT BUILDINGS

The second category of concern, intelligent buildings, covers Federally-owned buildings under the jurisdiction of the Corps and includes such equipment as elevators, HVAC controllers, access control, security surveillance, and fire detection/suppression systems. To date we have identified no threats to life or health in any Corps facility.

The status of intelligent buildings activities is shown in Figure 2.

Figure 2.
Intelligent Buildings



MISSION INFRASTRUCTURE

Our discussion of mission infrastructure will focus on navigation, flood damage reduction, and hydropower, and applies to environmental protection and restoration and emergency management activities as well. It must be noted that the Corps is also addressing Y2K as it pertains to the comprehensive engineering, management and technical support that we provide to the Department of Defense, to other Federal agencies, and to State and Local governments.

In addressing the Y2K problem within our Civil Works Program, mission infrastructure includes all of the equipment directly related to the proper functioning of authorized projects of the Corps. Potentially vulnerable equipment includes boats and dredges, water control facilities, lock and dam instrumentation controllers, power generation facilities, survey and geographic information system equipment, laboratory instrumentation, and communications and photographic devices. We have been paying particular attention to navigation, flood damage reduction and hydropower infrastructure issues over digital photographic and other minor devices, due to their more significant mission critical impact status.

Navigation

The Corps maintains approximately 12,000 miles of commercial navigation channels, owns and/or operates 275 navigation lock chambers, and maintains 299 deep draft harbors and 627 shallow draft coastal and inland harbors. To date, we have determined that our navigation locks do not use imbedded processors for critical control functions. Further, communication with tows is by radio, which has been inspected and is Y2K compliant. All locks have emergency generators for full power operations. Established emergency operation procedures provide for contingency operations to minimize disruption in the event of natural or manmade disasters. We believe that our navigation business function is and will continue to be in good shape.

Flood Damage Reduction

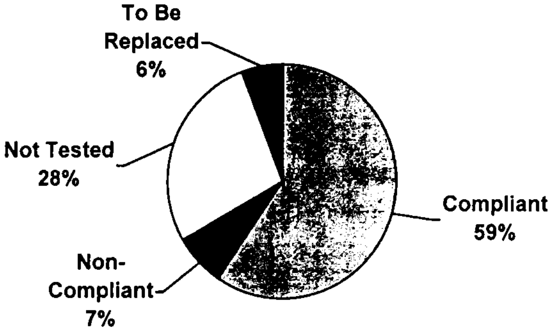
The Corps flood damage reduction mission infrastructure includes major lakes and reservoirs and levee systems. The operation of the 383 major lakes and reservoirs which serve as the water control systems associated with flood damage reduction projects offers the greatest potential vulnerability to the Y2K problem. We have not, however, identified any mission-critical failure modes for imbedded processors utilized in water control systems. As with the locks and dams, operations controls are capable of manual override and operation in the event of an emergency. Levee systems, consisting of approximately 8,500 miles of levees, are primarily managed by project sponsors. Through our continuing efforts in assisting these non-Federal entities in their own Y2K technical assessments, we are maximizing readiness and continuity of the overall flood damage reduction systems.

Hydropower

Through the operation of 75 hydropower projects, the Corps provides approximately 24 percent of the Nation's hydropower capacity, which also represents approximately three percent of total electric capacity of the Nation. Our hydropower systems use a wide variety of automated systems for control and instrumentation; however, all power facilities can be operated manually with minimal loss of operational efficiency. Again, Corps personnel are routinely trained in emergency operations procedures at hydropower facilities. For those projects that are normally un-manned and operated via remote control, operator staff will be on duty on January 1, 2000, and for as long as necessary thereafter, should problems arise. We expect to have all critical aspects of Corps hydropower systems Y2K-compliant before January 1, 2000. The Corps is actively coordinating with the Power Marketing Administrations of DOE, and with the Department of the Interior's Bureau of Reclamation to insure that the Federal portion of the National power grid remains both viable and stable.

The status of mission infrastructure activities is shown in Figure 3.

Figure 3.
Mission Infrastructure

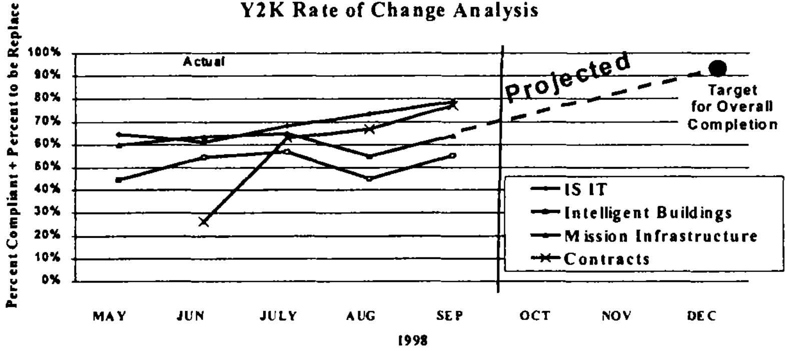


SUMMARY AND CONCLUSION

The Corps takes the Year 2000 problem very seriously. Anything which has the capability to negatively impact our agency mission capabilities must be taken seriously. The Chief of Engineers has communicated this to his leaders, who have activated all levels of the organization. We take considerable pride in the successful execution of our missions in support of the Nation – whether it be the facilitation of the movement of goods to market via the Nation's rivers and harbors, the prevention of economic and other losses via our flood damage reduction projects, the generation of electric power to light Americans homes and power our factories, or the emergency assistance we provide in the recovery from natural disasters – like the recent Hurricane Georges. The Corps has, and is, carefully examining every component in our extensive infrastructure support domain to insure that there are no surprises. We have, and are, addressing Y2K compliance in our projects, contracts and leases, and we have issued significant guidance to our operating components in this regard.

While there have been some short term reverses in our overall program progress as new avenues of vulnerability have been discovered and explored, we have recovered handily as a result of the hard work and dedication of our staff (Figure 4). We expect to greet the new century eagerly and mission-ready.

Figure 4.
Y2K Rate of Change Analysis



Mr. Chairman, that concludes my statement. We would be pleased to address any questions that you, the Committee, or the Task Force may have on the Year 2000 problem.

DEPARTMENT OF TRANSPORTATION

STATEMENT OF

DEPUTY MARITIME ADMINISTRATOR FOR INLAND WATERWAYS AND GREAT LAKES

JOHN E. GRAYKOWSKI

BEFORE THE HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

ON THE YEAR 2000 TECHNOLOGY PROBLEM

OCTOBER 7, 1998

Department of Transportation
Maritime Administration
400 Seventh Street, S.W.
Washington, D.C. 20590
Tel: (202) 366-1707

DEPARTMENT OF TRANSPORTATION

STATEMENT OF

DEPUTY MARITIME ADMINISTRATOR FOR INLAND WATERWAYS AND GREAT LAKES

JOHN E. GRAYKOWSKI

BEFORE THE HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

ON THE YEAR 2000 TECHNOLOGY PROBLEM

OCTOBER 7, 1998

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to testify on the Maritime Administration's (MARAD) and the maritime industry's efforts to prepare for the technology challenges which will arise with the arrival of the Year 2000 (Y2K).

Your foresight in holding these hearings will help to further spread the information necessary to solve the potential problems associated with the arrival of the year 2000. As all mariners know, time and tide wait for no one -- and, as of today, there are only 450 days left before we enter the new millennium. I can assure you that neither MARAD nor the maritime industry as a whole have underestimated the seriousness of this issue. What we have done so far, and what we continue to do between now and January 1, 2000 will dictate whether we enter the millennium with confidence or with concern.

In terms of MARAD's internal efforts to prepare for the millennium, we continue to make great progress and are confident that our systems will be ready by the end of 1999. As of September 30, 1998, MARAD has completed the assessment and renovation of all of our mission critical application systems in both headquarters and the field. The validation process has begun on most of these systems and is expected to be fully completed by the January 31, 1999 deadline set by the Office of Management and Budget (OMB). Purchases of new Y2K compliant hardware and software were started in late fiscal year 1997 and completed during fiscal year 1998, bringing most of our desktop equipment into compliance. Additional purchases are planned for early fiscal year 1999, and will complete our system-wide upgrading efforts. The current estimated total cost for completing the entire Y2K effort in both headquarters and the field is approximately $2.7 million.

MARAD has also assessed the impact of Y2K on electronic equipment installed on board Ready Reserve Fleet (RRF) ships. Each MARAD region was required to inventory all electronic equipment on RRF vessels which have date input, output, or use the date for data logging, including any equipment that receives date input from outside the vessel (e.g. satellite communication GPS, etc.). That assessment was completed and a renovation plan developed for this equipment. However, the RRF has been reported as an exception for the renovation phase completion date of September 30, 1998, due to scheduling of equipment repairs based on vendors' timetables for delivery of Y2K compliant components. MARAD expects to have all RRF shipboard electronic equipment impacted by Y2K renovated no later than December 31, 1998 and will take advantage of any opportunities to accelerate this schedule where possible. However, I would like to assure you that full implementation is still expected to occur by March

31, 1999, under any scenario.

With respect to the maritime industry in its preparation for Y2K, MARAD has been conducting outreach for some time. This enables us to educate the maritime industry, as well as offer leadership and assistance where possible. What is also significant is that our outreach activities help us to identify the progress that is being made. It is encouraging that the industry appears well informed on the issue, and eager to solve any problems. I must, however, note that while the maritime industry is proactively addressing their internal system Y2K issues, it is a far greater challenge for them to address many of the external interfaces they deal with on a daily basis.

The maritime industry's need to prepare for Y2K as it relates to internal systems alone is a tremendous challenge -- including both shore based and vessel based systems. Shore based systems include those such as financial and payroll systems, human resources administration, health and safety management, materials and inventory management, and legal/government affairs systems supporting mandatory regulatory reporting. They also include systems unique to the maritime industry such as vessel operations and engineering systems administration.

However, the maritime industry must also focus its attention on the myriad vessel based internal systems operated to a large degree by computers -- affecting navigation, timekeeping, propulsion, communications and cargo operations. The effect here is indeed wide spread. For example, while the Department of Defense has indicated that the Global Positioning System

(GPS) itself will not have Y2K problems, the GPS receivers used aboard merchant vessels may not be Y2K compliant. There are numerous other shipboard navigational systems that rely to some degree on computer input -- including radar, collision avoidance systems, LORAN, electronic charting systems, Fathometers, electronic timekeeping devices, and automated steering systems. Shipboard communications systems critical to safe operations that may also be affected include VHF radio telephone communications, Global Maritime Distress and Safety System (GMDSS) communications, ship internal communications systems, telex and facsimile communication devices. Even vessel propulsion systems such as main engine controls and monitoring systems, and electrical power generating systems may be affected. Finally, cargo operations will need to be updated as many shipboard cargo cranes use computer technology and cargo refrigeration systems. Computers that monitor vessel stability as cargo is being loaded and unloaded, as well as systems that monitor liquid cargo and ballast levels are also subject to the problem. Every automated or semi-automated function will need to inspected. Similarly, many of the modern shore based gantry cranes used for loading and unloading vessels rely on computer systems, as does the cargo documentation necessary for the smooth flow of goods into and out of port areas. Even so simple a thing as the security gates that control access to port areas will need to be inspected for potential problems. Obviously, formulating a plan for every vessel before the year 2000 could be time consuming and expensive for marine transportation companies, ocean carriers and even the port authorities.

With respect to external systems, shore based financial interactions are a primary concern. The potential problems associated with the millennium are particularly significant for the maritime industry because of the inherent interaction between carriers, shippers and third parties. Electronic Data Interchanges are frequently used between parties to conduct basic commercial transactions. Cargo documentation such as letters of credit and bills of lading are often handled electronically. Thus, if one party along the electronic interchange does not upgrade or replace a critical system, it could result in a ripple effect. Moreover, dates for such things as cargo pick ups, vessel departures and arrivals, and interaction with Government agencies including the U.S. Customs Service, Immigration and Coast Guard – which are all daily occurrences – increase the potential for slow downs and port congestion which could result in reduced commerce.

Another area of concern for many shipping companies is that they utilize charter agreements for vessels operated for them by other parties. Some shipping companies are including Y2K warranties to charters and Y2K relevant clauses in marine insurance policies.

Although potential Y2K problems cover a wide variety of areas within the industry, the issue is essentially one of identifying systems that need attention and allocating resources as necessary. Recently, MARAD met with several maritime trade associations to take stock of the industry's readiness for Y2K and to discuss potential cooperative efforts that could be undertaken between the various associations and Government agencies. The meeting revealed that many of the associations, representing a wide cross section of the industry, are already hard at work gathering and disseminating valuable information to their members and constituents. One association noted that its members, without exception, have already completed a Y2K assessment plan or are developing one. The association also noted that it was developing a generic marine transportation contingency plan identifying critical shore based and vessel based systems that must be Y2K compliant in order to ensure safe and efficient vessel operations. The plan is intended not just for member companies, but the maritime industry as a whole. Furthermore, many companies are in the process of formulating contingency plans in case certain Y2K patches do not work or if critical systems are not addressed in time.

One maritime association is preparing a status report that will soon be available on its web-site to member companies, while another is working on a Y2K "lessons learned" section for its members. In the past, some companies have been reluctant to share information for fear of liability or possible anti-trust infractions. Thus, the U.S. Coast Guard has agreed to serve as a clearing house for any lessons learned or problems identified with Y2K issues related to the maritime industry. Additionally, MARAD has dedicated a portion of its web-page to Y2K issues, with links to other industry sites containing helpful information. In this area, I would especially like to thank Congress for its expeditious consideration and passage of the President's legislation to protect from liability those who, in good faith, share information on the Y2K problem. I believe that S. 2392, the Year 2000 Information and Disclosure Act, will help to alleviate some of these concerns.

Mr. Chairman, I would like to point out the fact that MARAD and Coast Guard are attempting to assist the maritime industry in similar areas and ways -- which could be construed as overlapping – only underscores the importance to get the message out about Y2K compliance.

By working together, we are better able to gauge the activity and preparedness of the industry, domestically and internationally.

Our meetings and ongoing communications with marine transportation companies have revealed that the industry is anxious to learn what it can from other members of the private sector and the Government. Associations and individual companies have indicated their desire to participate, as partners with Government, to identify and solve mutual problems.

Industry signals appear to indicate that while most companies are currently busy trying to identify their own potential problems, they are confident that they will be able to become Y2K compliant with regard to their most critical internal systems. However, there is a degree of concern with regard to the readiness of external interfaces. Obviously, vessel owners and operators have little or no control over the status of Y2K assessment and action plans of entities that are externally interfaced with. Although maritime companies can communicate with those they deal with and seek assurances that the Y2K problems are being sufficiently addressed, it would not be practical for them to get immersed in detailed oversight.

Finally Mr. Chairman, it must be noted that the maritime industry by its very nature is international in reach. The fact that the vast majority of the cargo imported to the United States comes by water via foreign-flag ships underscores the need to spread the Y2K word both domestically and internationally. Although we are concerned about the level of Y2K awareness and preparation on an international level, we are encouraged by the fact that many international maritime publications, insurance companies and the International Maritime Organization itself have taken up the cause to ensure that we enter the new millennium smoothly. Furthermore, the vast amount of useful information available on the Internet through our web-site and countless others, knows no borders. Our trading partners essentially have access to the same information we have.

In conclusion, we at MARAD recognize the continuing need to raise the level of awareness and preparation on this issue. While a good deal has already been accomplished, we will continue to work with the industry to solve any problems as quickly as possible. Although we remain optimistic, we also recognize that it is a task that will continue even after midnight on December 31, 1999. For that reason we will continue to maintain our outreach efforts and assist the industry in any way we can.

That concludes my prepared statement, and I would be pleased to answer any questions you may have.

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amsa

Statement of the Association of Metropolitan Sewerage Agencies before the Committee on Transportation & Infrastructure U.S. House of Representatives on the Year 2000 Readiness

October 7, 1998

Testimony presented by
Glenn Harvey
Deputy Engineer - Director
accompanied by
Florante Santos
Manager, Information Systems
Alexandria Sanitation Authority
Alexandria, Virginia

Association of Metropolitan Sewerage Agencies 1000 Connecticut Avenue, NW, Suite 410 Washington, DC 20036 202/833-AMSA

Mr. Chairman and members of the Committee, I am Glenn Harvey, Deputy Engineer - Director of the Alexandria Sanitation Authority in Virginia. I am accompanied by Florante Santos, the Manager of Information Systems for our Authority. I appear before the Committee today representing the Association of Metropolitan Sewerage Agencies (AMSA). AMSA is a dynamic coalition of over 200 of the nation's publicly owned wastewater treatment agencies. AMSA members collectively serve the majority of the sewered population in the United States, and treat and reclaim more than 18 billion gallons of wastewater each day. Over the past 28 years, AMSA has maintained a close working relationship with both Congress and the U.S. Environmental Protection Agency in the development of environmental legislation and policymaking.

Locally, AMSA member agencies play a major role in their communities, often spearheading watershed management efforts, promoting industrial/household pollution prevention and water conservation, and developing urban stormwater management programs. AMSA members are true environmental practitioners who work daily to ensure the safety and quality of our nation's water supply.

AMSA appreciates the opportunity to present the results of a survey of its members on the issue of Year 2000 Readiness to the Committee.

AMSA's Year 2000 Survey

AMSA conducted a survey of its members to assess the extent to which wastewater agencies have evaluated the Year 2000 (Y2K) problem, the estimated costs to remedy the problem, the status of implementing solutions, the impacts of potential system failures, and whether plans are in place should systems fail. Seventy-six of AMSA's 202 agencies responded to the June 10, 1998 survey.

Since the time our June 1998 survey was conducted several issues regarding contingency planning and the effects of external Y2K problems (e.g. electricity, telecommunications, chemical delivery disruption) have been raised. AMSA is in the process of conducting a follow-up survey of its members to obtain a national perspective of how these issues may affect wastewater services nationwide. The results of this follow-up survey will be provided to the Committee in early November.

The testimony which follows provides the results of AMSA's June 1998 survey.

Computer Use and Level of Automation

Computers, microchips, electronic data logging/analysis, and remote monitoring/control systems are widely used and are critical components in the overall functions of the nation's public wastewater treatment agencies. These systems contribute to varying levels of automation in the industry. While many of the functions within wastewater agencies can be automated or computerized - - such as administrative functions (e.g. billing, payroll, finances, etc.), process control operations, or laboratory functions - - all these functions can be performed manually, and a significant portion of the industry is not fully automated.

Respondents to AMSA's survey indicated an average level of automation of 54 percent. For example, some agencies have automated billing systems, while treatment plants may operate manually. Other agencies have fully automated administrative operations, process operations, and industrial compliance programs, but may not have automated data processing in their laboratory.

The survey examines the level of implementation of Supervisory Control and Data Acquisition (SCADA) systems within the AMSA membership. SCADA systems can allow operators to remotely collect operational data, and control operations of pump stations or treatment plant processes from a single location. Among the survey respondents, 88 percent currently implement some form of SCADA system, and nearly 100 percent of respondents indicated future plans to use SCADA systems. It should be noted that although a wastewater treatment agency may use SCADA in some of its processes, this does not necessarily mean that the entire treatment process is automated. For instance, a SCADA system may be used to monitor and collect data from remote pumping stations; however, the SCADA may not monitor treatment plant processes.

Nearly 100 percent of the agencies responding to the AMSA survey indicated that computers were used in process control, laboratory, industrial compliance, billing systems, and for other administrative purposes, such as finances, inventory, and maintenance management. A complete listing of responses on the use of computers/microchips in agency functions includes:

- *Administrative:* billing, accounts payable, payroll, human resources, purchasing, telephone systems, assessments, procurement, contract management, capital investment programs, general ledger, office automation, pensions
- *Maintenance:* system and plant maintenance management, inventory
- *Operations:* process control, embedded programmable logic controls, SCADA, electronic pressure recorders, generators, collection system monitoring, flow monitoring, mobile equipment, meter reading and routing
- *Laboratory:* laboratory analysis, calibration, reporting
- *Industrial Waste:* permitting, industrial compliance determinations, sampling
- *Engineering:* project tracking, geographic information systems, computer-aided drafting
- *Reporting:* National Pollutant Discharge Elimination System reporting and monitoring
- *Other:* interactive voice response, Internet, energy management, telephones, security, radio, elevators, fire alarms.

Assessment and Action

A vast majority of AMSA survey respondents (90 percent) have developed a plan to assess and address the Y2K problem. Many of these assessments are very formal processes which are either initiated under a comprehensive local government assessment or as part of the agency's overall planning processes (it should be noted that 50 percent of the AMSA membership are agencies which operate under the jurisdiction of a local city or county government, while another 50 percent of AMSA members operate as regional districts). A little more than half of the agencies are addressing (or intending to address) the problem in-house, while the remainder are using consultants or a combination of in-house staff and consultants.

Costs

The costs to address the Y2K problem vary widely for survey respondents. Forty-five percent of the wastewater agencies which reported estimated costs indicated that the cost to address the Y2K problem was relatively minimal, ranging from 0 to $100,000, while 15 percent reported estimated costs in excess of $1,000,000, with the two highest reported values being $15,000,000. Most of the agencies reporting expenditures in excess of $1,000,000 were relatively large systems; however, 17 percent of these were agencies serving populations less than 250,000. In general, most agencies reported total estimated costs to fix the Y2K problem between 0 to 2 percent of annual operation costs. Four agencies reported estimated costs to fix the Y2K problem over 10 percent of annual operation costs. The average annual budget for an agency serving one million people is approximately $125,000,000.

Progress in Implementing Solutions

Implementation of solutions to the Y2K problem varies widely, though most responding agencies have made some progress. Approximately 95 percent have begun to implement solutions to the Y2K problem, while 26 percent are complete or nearly complete. To address the Y2K problem, many agencies are systematically checking and upgrading systems which are not Y2K compliant. Most agencies expect that system upgrades or replacements will be completed in 1999. Some agencies are running tests on software and hardware systems by making them "think" it is January 1, 2000, and observing the results in a controlled environment. Because of the inability for wastewater agencies to directly test all systems which use embedded microchips such as meter readers, programmable logic controllers, security systems, elevators, alarms, etc., these systems remain the largest "unknown" in terms of testing Y2K compliance, though agencies may receive assurances from vendors that these systems are Y2K compliant.

Impacts of Year 2000 Failure

Though most agencies believe they will be Y2K compliant in 1999, AMSA's survey requested that agencies project the resulting impact, should a Y2K failure occur in any critical systems. A breakdown by agency function follows:

Administration - Computers are used throughout the administrative functions of a wastewater treatment agency. Billing, payroll, human resources, and many other functions depend on accurate computerized record-keeping and reporting. Potential failures in billing systems are the most troublesome to agencies responding to the survey. Should systems fail in the event of a Y2K problem, nearly all agencies indicated that delays in billing would result in serious cash flow interruptions. These interruptions in cash flow are unlikely to directly affect operations, as many agencies have cash reserves on hand, or may be able to negotiate with vendors to extend bill due dates, however, such a failure is likely to have major impact on the administrative functions of the agency. Some agencies reported that they have backup contingencies should there be a failure in automated billing.

Process Control - All responding agencies with automated process controls have the ability to switch to manual operations almost immediately or within hours in the event of a Y2K failure. Approximately 15 percent of AMSA agencies reported potential treatment plant problems and possible compliance issues as a result of switching to manual mode. Potential additional costs would be incurred with the addition of staff or the payment of overtime.

One of the biggest concerns in this situation is that collection system and plant operational data would not be immediately accessible for the operators, and whether this would lead to sewage backups, overflows, or compliance problems. However, most agencies reported that switching to manual mode would pose no, or very minor, problems as many automated operations run in parallel with "manual" instrumentation and control. For instance, a wastewater treatment plant may use programmable logic controllers (PLCs) within its treatment operations to control valves or pump operations based on flow or pressure readings. In normal operations, the data from these controllers would be relayed to an operator's computer control screen, and the PLCs would automatically activate valves or pumps accordingly. Should one or more PLCs malfunction, an operator would no longer receive data via the computer control screen and would have to "manually" read flow meters or pressure gauges. The operator also could not rely on the PLCs to automatically activate appropriate valves or pumps, and would thus have to "manually" adjust these controls.

One potential catastrophic failure issue which was noted and which is beyond the control of the wastewater agency is the occurrence of a major regional electrical power failure. There are a wide-range of capabilities in terms of operating treatment plants in the absence of a electrical power. Some agencies indicated that they can operate their treatment plants indefinitely through the use of diesel or natural gas powered generators, though whether they can obtain fuel during this type of emergency is questionable. Some agencies could not operate their plants without adequate electrical power, and obtaining this backup capability may not be technically, or economically feasible. Even if adequate back-up power is available at the treatment plant, there may not be adequate back-up power at all pumping stations to deliver all wastewater flow to the plant, leading to sewage overflows into creeks or sewage backups into homes.

Laboratory - Should laboratory systems fail, the issue would be whether agency laboratories could adequately and accurately analyze sample results, and report compliance problems adequately to regulatory and public health agencies. Some agencies can operate in manual mode, while others indicated that out-sourcing of lab functions could be implemented.

Industrial Compliance Programs - Should industrial compliance systems fail, the wastewater treatment agency would not be able to adequately monitor industrial customer compliance, which could result in undetected high strength discharges leading to treatment plant upsets, delays in issuing permits, and noncompliance with federal regulatory pretreatment requirements.

Plan of Action

Nearly 55 percent of the agencies have a plan of action should all or a portion of their systems fail as a result of the Year 2000. Some of the agencies with no plan in place indicated that their systems were already or soon to be Y2K compliant, and that a plan was not necessary or not applicable. Depending upon which systems fail, manual operation can be initiated immediately or within a day in most cases. However, inability to monitor remote operations could lead to system problems such as sewage backups and overflows. One agency indicated that monitoring systems will be switched to manual operation prior to midnight, December 31, 1999 to ensure systems will not fail.

One Agency's Story

The Alexandria Sanitation Authority exists solely to provide wastewater treatment services to our customers in the City of Alexandria and adjoining portions of Fairfax County. Our highest priority is to provide uninterrupted wastewater treatment service at the high treatment levels demanded by our permit and expected by our customers. There are three major areas where Y2K problems could disrupt or impair our continued service.

The single greatest danger to our ability to sustain treatment is a potential interruption of electrical power. We have dual electric feed lines; however, it is not practical, both economically and due to site constraints, for the Authority to provide electrical generation capacity. If the regional electric grid fails, we are literally dead in the water. Our second greatest vulnerability to treatment is an interruption of delivery of key process chemicals. We can and will top our tanks before January 1, 2000; however, we can maintain only about a 15 day supply of the chemicals we need to effectively treat wastewater. If supply disruptions last beyond 15 days, the quality of our effluent will degrade rapidly. Our third greatest vulnerability to treatment is potential failures of our instrumentation and control systems. The vast majority of our systems can be operated manually; however, failure of some of these systems would demand additional manpower to maintain treatment and would impair overall efficiency.

The Alexandria Sanitation Authority has been actively pursuing a program to ensure that the Authority will be in compliance with processing requirements for the Year 2000. The goal of the policy is to provide guidelines, standards, procedures and policies to ensure compliance for all processes and ensure that the functions of each department will continue into the next century.

Specific objectives to ensure that we accomplish that goal include building awareness of the potential by distributing relevant information throughout our organization; defining compliance and tracking our progress; inventorying our internal and external interfaces; and conducting tests of our systems.

We have begun extensive testing of our software programs and computer hardware. Particular attention has been paid to the difficulties of testing embedded chips in our instrumentation and control systems. We have made progress, though work continues, in obtaining Y2K compliance statements from our major suppliers, particularly utilities and chemical suppliers.

There are numerous secondary concerns and challenges associated with the Y2K problem such as administrative and financial functions; however, these do not present an immediate threat to the protection of public health and the environment. If electric service is maintained and chemical deliveries continue, we will be able to perform our primary function.

Conclusion

While the results of the AMSA survey, and follow-up discussions with wastewater treatment agency staff, indicate clearly that the large segment of wastewater industry represented by AMSA's membership will respond effectively to the challenges presented by the Year 2000 problem, we do have concerns in the enforcement arena. AMSA learned that the U.S. Environmental Protection Agency's Office of Enforcement and Compliance Assurance (OECA) is poised to issue a policy to encourage the testing of systems for Y2K compliance. The policy would limit permittee liability for violations that occur as a result of Y2K testing. OECA has indicated that the policy would allow permittees to test their systems in advance of January 1, 2000 without fear of enforcement penalties should violations occur. Limits on liability, however, would be subject to the permittee practicing due diligence, such as notifying the regulatory authority in advance of the tests, and discontinuing tests immediately after Y2K related failures or violations are observed.

The OECA policy currently being developed is not anticipated to cover any Y2K related violations that occur after January 1, 2000. EPA has indicated that they feel it is too soon for the enforcement office to develop a policy for post January 1, 2000 problems, and do not want to encourage a slowing of efforts to address Y2K problems. AMSA would like to share with the Committee our concern that without such a policy it is unclear how POTWs will be held accountable for potential violations occurring as a result of circumstances that are out of their control. Current permit regulations provide liability defense for noncompliance based on factors beyond the reasonable control of the permittee. It is unclear, however, how these regulations apply to Y2K-related noncompliance issues. This is an important issue that should be addressed and we suggest strongly that any enforcement policy directed at Y2K compliance warrants Congressional oversight as it proceeds.

On behalf of AMSA, thank you for this opportunity to testify on Y2K readiness. We look forward to providing the results of our follow-up survey to the Committee early in November.

This brings my testimony to a close. I would be happy to answer any questions that you may have.

Attachment: AMSA's Member Agencies

amsa Member Agencies

Jefferson County Commission, AL
Mobile Area Water & Sewer System, AL
Water Works & Sanitary Sewer Board of the City of Montgomery, AL
Anchorage Water & Wastewater Utility, AK
City of Mesa, AZ
City of Phoenix Water Services Department, AZ
Pima County Wastewater Management, AZ
City of Little Rock Wastewater Utility, AR
Pine Bluff Wastewater Utility, AR
Central Contra Costa Sanitary District, CA
City of Los Angeles Department of Public Works, CA
City of Oxnard, CA
City of Palo Alto, Public Works Department, CA
City of Riverside Water Reclamation Plant, CA
City of Sacramento Department of Utilities, CA
City of San Diego Metropolitan Wastewater Department, CA
City of San Jose, Environmental Services Department, CA
City of Stockton Municipal Utilities Department, CA
City of Thousand Oaks Public Works Department, CA
County Sanitation Districts of Los Angeles County, CA
County Sanitation Districts of Orange County, CA
Delta Diablo Sanitation District, CA
East Bay Municipal Utility District, CA
Encina Wastewater Authority, CA
Fairfield Suisun Sewer District, CA
Sacramento Regional County Sanitation District, CA
San Bernardino Municipal Water Department, CA
San Francisco Public Utilities Commission, CA
South Bayside System Authority, CA
South East Regional Reclamation Authority, CA
Union Sanitary District, CA
Yucaipa Valley Water District, CA
City of Greeley, Water & Sewer Department, CO
City of Pueblo Wastewater Division, CO
Colorado Springs Utilities, CO
Metro Wastewater Reclamation District, CO
The Metropolitan District (Hartford County), CT
District of Columbia Water & Sewer Authority, DC
Broward County Environmental Services, FL
City of Boca Raton Public Utilities Department, FL
City of Hollywood, FL
City of Jacksonville, FL
City of Orlando, FL
City of St. Petersburg, FL
City of Tallahasse Water Utilities, FL
City of Tampa Department of Sanitary Sewers, FL
Collier County Public Works Division, FL
Escambia County Utilities Authority, FL
Hillsborough County Public Utilities Department, FL
Miami-Dade Water & Sewer Department, FL
Orange County Utilities, FL
Pinellas County, FL
Sarasota County Utilities Department, FL
Water & Wastewater Systems, Gainesville Regional Utilities, FL
City of Atlanta, Department of Public Works, GA
Columbus Water Works, GA
Gwinnett County Department of Public Utilities, GA
Macon Water Authority, GA
Department of Wastewater Management, City & County of Honolulu, HI
City of Boise, Public Works Department, ID
City of Pocatello Water Pollution Control Department, ID
American Bottoms Regional Wastewater Treatment Facility, IL
Bloomington & Normal Water Reclamation District, IL
Downers Grove Sanitary District, IL
Fox River Water Reclamation District, IL
Greater Peoria Sanitary District, IL
Metropolitan Water Reclamation District of Greater Chicago, IL
North Shore Sanitary District, IL
Rock River Water Reclamation District, IL
Sanitary District of Decatur, IL
Springfield Metro Sanitary District, IL
Thorn Creek Basin Sanitary District, IL
Urbana & Champaign Sanitary District, IL
City of Indianapolis Department of Public Works, IN
City of Valparaiso, IN
Fort Wayne City Utilities, IN
Des Moines Regional Wastewater Reclamation Authority, IA
City of Wichita Water & Sewer Department, KS
Johnson County Unified Wastewater Districts, KS
Unified Government Wyandotte County/Kansas City, Water Pollution Control Division, KS
Louisville & Jefferson County Metropolitan Sewer District, KY
Sanitation District No. 1 of Campbell & Kenton Counties, KY
Sewerage & Water Board of New Orleans, LA
Anne Arundel County Department of Public Works, MD
Baltimore Department of Public Works, Environmental Services, MD
Howard County Department of Public Works, MD
Washington Suburban Sanitary Commission, MD
Lowell Regional Wastewater Utility, MA
Lynn Water and Sewer Commission, MA
Massachusetts Water Resources Authority, MA
Springfield Water & Sewer Commission, MA
South Essex Sewerage District, MA
Upper Blackstone Water Pollution Abatement District, MA
City of Flint, Water Pollution Control Facilities, MI
City of Grand Rapids, MI
City of Kalamazoo, MI
Detroit Water & Sewerage Department, MI

over

Member Agencies continued

Wayne County Department of Environment & Public Works, MI
Metropolitan Council Environmental Services, MN
Rochester Minnesota Water Reclamation Plant, MN
Western Lake Superior Sanitary District, MN
Independence Water Pollution Control Department, MO
Kansas City Water Services Department, MO
Little Blue Valley Sewer District, MO
Metropolitan St. Louis Sewer District, MO
City of Omaha Public Works Department, NE
Clark County Sanitation District, NV
Truckee Meadows Water Reclamation Facility, NV
Nashua Wastewater Treatment Facility, NH
Atlantic County Utilities Authority, NJ
Bergen County Utilities Authority, NJ
Edgewater Municipal Utilities Authority, NJ
Ewing-Lawrence Sewerage Authority, NJ
Gloucester County Utilities Authority, NJ
Joint Meeting of Essex & Union Counties, NJ
Middlesex County Utilities Authority, NJ
Ocean County Utilities Authority, NJ
Passaic Valley Sewerage Commissioners, NJ
Rahway Valley Sewerage Authority, NJ
Somerset Raritan Valley Sewerage Authority, NJ
The Jersey City Municipal Utilities, NJ
City of Albuquerque, Wastewater Utility Division Public Works Department, NM
City of Santa Fe, NM
Albany County Sewer District, NY
County of Monroe, Department of Environmental Services, NY
Nassau County Department of Public Works, NY
New York City Department of Environmental Protection, NY
Onondaga County Department of Drainage & Sanitation, NY
Charlotte Mecklenberg Utilities, NC
Metropolitan Sewerage District of Buncombe County, NC
Raleigh Public Utilities Department, NC
City of Akron, Public Utilities Bureau, OH
City of Canton Water Pollution Control Center, OH
City of Dayton, Department of Water, OH
City of Hamilton Department of Public Utilities, OH
City of Troy, OH
Columbus Division of Sewerage & Drainage, OH
Metropolitan Sewer District of Greater Cincinnati, OH
Northeast Ohio Regional Sewer District, OH
Toledo Department of Public Utilities, OH
Utilities Department, City of Lima, OH
City of Oklahoma, City Water & Wastewater Utilities Department, OK
The City of Tulsa Public Works Department, OK
City of Corvallis, Public Works
Department, OR
City of Eugene Wastewater Division, OR
City of Gresham Sanitary Sewer & Wastewater Treatment, OR
City of Portland, Bureau of Environmental Services, OR
City of Salem, Wastewater Systems, OR
Clackamas County Department of Utilities, OR
Oak Lodge Sanitary District, OR
Unified Sewerage Agency of Washington County, OR
Allegheny County Sanitary Authority, PA
City of Philadelphia Water Department, PA
The Harrisburg Authority, PA
Puerto Rico Aqueduct and Sewer Authority, PR
Narragansett Bay Water Quality Management District Commission, RI
Charleston Commissioners of Public Works, SC
Greenwood Metropolitan District, SC
Spartanburg Water System & Sanitary Sewer District, SC
Western Carolina Regional Sewer Authority, SC
City of Chattanooga, Waste Resources Division, TN
City of Johnson City, TN
Department of Water & Sewerage Services of Nashville & Davidson County, TN
Knoxville Utilities Board, Water & Wastewater Bureau, TN
Memphis Division of Public Works, TN
Brownsville Public Utilities Board, TX
City of Austin Water & Wastewater Utility, TX
City of Corpus Christi Wastewater Division, TX
City of Garland, TX
City of Houston Public Works & Engineering, Public Utilities Group, TX
City of San Antonio Water System, TX
Dallas Water Utilities, TX
El Paso Water Utilities, Public Service Board, TX
Fort Worth Water Department, TX
Gulf Coast Waste Disposal Authority, TX
North Texas Municipal Water District, TX
Trinity River Authority of Texas, TX
Central Davis County Sewer District, UT
Central Valley Water Reclamation Facility, UT
Salt Lake City Public Utilities, UT
Alexandria Sanitation Authority, VA
Arlington Department of Environmental Services, VA
Chesterfield County Utilities, VA
City of Lynchburg Department of Public Works, VA
City of Richmond, Department of Public Utilities, VA
City of Roanoke Water Pollution Control Plant, VA
County of Stafford Department of Utilities, VA
Fairfax County Integrated Sewer System, VA
Hampton Roads Sanitation District, VA
Henrico County Wastewater Treatment Facility, VA
Hopewell Regional Wastewater Facility, VA
Prince William County Service Authority, VA
Upper Occoquan Sewage Authority, VA
City of Everett Public Works Department, WA
City of Lakehaven, WA
City of Lynnwood, WA
King County Department of Natural Resources, Wastewater Division, WA
Tacoma Public Works Department, WA
City of Superior - Wastewater Division, WI
Green Bay Metropolitan Sewerage District, WI
Madison Metropolitan Sewerage District, WI
Milwaukee Metropolitan Sewerage District, WI
Racine Wastewater Utility, WI

CHAMBER OF SHIPPING
OF AMERICA

TESTIMONY BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

ON

THE YEAR 2000 PROBLEM IN THE MARINE TRANSPORTATION INDUSTRY

OCTOBER 7, 1998

PRESENTED BY

KATHY J. METCALF

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Mr. Chairman, members of the Committee, my name is Kathy J. Metcalf and I am the Director of Maritime Affairs at the Chamber of Shipping of America. The Chamber of Shipping represents 14 U.S. based companies which own, operate or charter oceangoing tankers, container ships, and other merchant vessels engaged in both the domestic and international trades. The Chamber also represents other entities which maintain a commercial interest in the operation of such oceangoing vessels.

The Chamber appreciates the opportunity to testify on the issue of the Year 2000 problem and its potential impacts on the marine transportation industry. The Chamber also appreciates the recognition by this and other Committees that the solutions to the Y2K problem in any sector will be facilitated by an active and ongoing dialogue among the various stakeholders which, in the marine transportation industry, include carriers, shippers, ports and the federal, state and local agencies. Simply put, an effective and thorough Y2K solution by any entity can not be effected in a vacuum. A microscopic analysis may lead to effective Y2K solutions for an entity's internal systems, but a macroscopic approach is necessary to ensure that all external interfaces are identified and Y2K compliance tested.

Today, we are testifying not as information technology experts, but rather as users of the systems designed by these experts. We believe the Y2K issue is, first and foremost, a management challenge. The technical challenge which involves assessment and contingency planning can occur only after the internal systems and external interfaces are identified by the users of these systems.

There are several areas which we would like to cover today.

- Nature and scope of the Y2K challenge in the marine transportation industry
- Past and ongoing activities of the Chamber of Shipping of America and its Members
- Status of our Members' Y2K assessment and contingency planning
- Proposals for future collaborative efforts among the various trade associations, government agencies and international colleagues

NATURE AND SCOPE OF THE Y2K CHALLENGE IN THE MARINE TRANSPORTATION INDUSTRY

By its very nature, marine transportation is international in scope and, as such, our testimony will address both domestic and international issues surrounding this problem. The most obvious systems which must be addressed in any Y2K plan in the marine transportation industry include shipboard and private sector shoreside systems relating to the safe and efficient navigation of vessels, cargo loading and discharging operations, shoreside facilities operations and systems which interface deeper into the shoreside distribution system including interfaces with shippers and the land based transportation network. Additional less obvious systems include the port and waterways infrastructure which assures safe and efficient operation of navigation channels through vessel traffic systems and aids to navigation, and other government systems operated by various government agencies including the U.S. Coast Guard, Customs Service, Maritime Administration and Federal Communications Commission. Our industry also must be concerned with these types of systems in foreign countries due to the significant amount of exports carried aboard vessels to points around the world. It is therefore essential that each interface in the marine transportation system, both domestic and international, be identified and subjected to Y2K compliance testing.

Mr. Chairman, there is an old marketing concept that provides a valuable lesson in meeting the Y2K challenge. Before implementing any newly designed system, it is a valuable exercise to trial run the input (be it a document or data) through the system so that interfaces with users and other systems can be identified and subjected to a quality control check. In the marine transportation industry, particularly with regard to vessel operations, this too is an enlightening and valuable exercise. The Chamber of Shipping Staff have completed this exercise by commencing an evaluation at the first stage of a vessel's voyage and progressed the vessel through the end of the voyage. At each step of this exercise, we have identified the many internal and external systems that are used at each step of both a domestic and international voyage with the end result being an inventory of systems which must be addressed in the assessment and contingency planning process. At this point, individual entities must promote cooperative efforts between their information technology professionals and operations personnel to further identify subcomponents of these critical systems and begin the arduous stage of Y2K compliance testing.

PAST AND ONGOING ACTIVITIES OF THE CHAMBER OF SHIPPING AND ITS MEMBERS

The Y2K technology problem has been an active issue on the Chamber's Operations Committee Agenda for the last three years. In its initial stages, the Chamber took the role of an information clearinghouse providing information to our Members in the form of published articles in the marine and general trade publications as well as the many documents produced by technical experts on the preparation and implementation of generic and marine transportation specific Y2K plans. The Chamber, as a member of the U.S. delegation to the International Maritime Organization (IMO), also participated in an international discussion held this Spring during the Maritime Safety Committee meeting.
Several excellent documents and website contacts have been identified by the Chamber which enables us to download pertinent information and forward these contacts on to our Members. These excellent websites include Ship 2000 (ship2000.com), the Department of Transportation Y2K Transportation Sector (y2ktransport.dot.gov) which contains specialty areas for waterways management and water travel/commerce, the President's Council on Year 2000 Conversion - Transportation Sector (y2k.gov/java/info6d.html), the Ship Operations Cooperative Program (socp.org/y2k.html), Y2K Today (y2ktoday.com) and the US Coast Guard (uscg.mil/hq/g-m/y2k.htm).

At the same time, we began to develop this informational collection system, we were prepared, when requested by our members, to provide valuable information on key contacts within the international maritime industry. These key contacts included not only technical persons who could assist our Members in their plan development, but also other individuals and companies knowledgeable in developing assessment and contingency plans with which they could share "lessons learned" as the plan development process went forward. Of particular interest at this stage of the exercise, was the identification of marine equipment manufacturer contacts with which our Members could work to design effective and thorough Y2K assessment and contingency plans for particular systems or pieces of equipment. While this list, found at several Internet websites, is by no means complete, it serves as a good starting point for system by system analysis. Unfortunately, our Members and other users worldwide, still have significant concerns as to the reliability and completeness of information provided by manufacturers, who are concerned with liability associated with the provision of Y2K compliance advice and general warranty issues.

Most recently, the Chamber and other maritime trade associations met with the Maritime Administration to discuss potential cooperative efforts that could be undertaken among the trade associations and the government agencies. Also, the Chamber and the American Association of Ports Authorities attended the International Trade Working Group meeting convened by Mr. John Koskinen, Chair of the President's Council on the Year 2000 Conversion, at which cooperative efforts between the various federal agencies and the international trade community were addressed.

STATUS OF OUR MEMBERS' Y2K ASSESSMENT AND CONTINGENCY PLANNING

Within the past six months during the Chamber's Operations Committee deliberations, we have informally polled our Members as to their status on Y2K assessment planning and are pleased to note that, without exception, all have plans underway if not already completed. We have also discussed this issue with our international colleagues and find that many are also addressing the Y2K challenge; however, some concern continues to be expressed about the private and public sector port and waterways infrastructure in many foreign ports.

At the Chamber's most recent meeting, our Members agreed that it would be helpful, not only to our Membership, but also to the maritime community as a whole, for the Chamber to develop a generic marine transportation contingency plan which identified systems onboard vessels, in home offices and within government agencies that are critical in the safe and efficient operation of vessels, and provide options for back-up, should primary systems fail. The Chamber has begun this effort and anticipates production of this plan in the near future.

PROPOSALS FOR FUTURE COLLABORATIVE EFFORTS AMONG THE VARIOUS MARITIME TRADE ASSOCIATIONS, GOVERNMENT AGENCIES AND INTERNATIONAL COLLEAGUES

As indicated above, the first stages of any Y2K plan are quite specific to the business entity implementing that plan. Because a company's information technology staff are most familiar with internal systems, especially traditional business systems such as finance, human resources and materials management, it makes these systems generally the first targets of a company's Y2K efforts. In a marine transportation entity, critical systems found onboard vessels have also been included in these evaluations, although marine systems with embedded chip issues need to be addressed both by the vessel owner/operator and the manufacturers' of these systems since the manufacturer is the expert on the design of these systems and the critical components that are Y2K susceptible.

As a maritime trade association, we believe there is more we can do to benefit our Members and the marine transportation system as a whole. It is clear that there is flurry of activity in our industry which seeks to address the Y2K issue. What is not so clear is the coordination of these efforts among the various sectors of the industry and what agency has regulatory authority over it. We believe that this coordination is absolutely essential to ensure that our "seamless" transportation system continues to operate without interruption on the critical dates. To achieve this end requires more than a good internal Y2K program for without more, the distinct segments will be self-sustaining but unable to interface with each other. The Chamber is committed to addressing this issue and has identified the following initiatives to address these needs.

First, we will continue to actively provide available information to our Members from all sources, both domestic and international, private and public sector. Similarly, we will share information with our international colleagues to maximize the likelihood that foreign transportation systems are addressing these issues .

Second, we are committed to addressing the problem of external interfaces which present the greatest challenges our Members. These challenges are heightened by the sheer number of these external interfaces as well as the fact that vessel owners and operators have little or no control over the Y2K assessment and contingency planning of their external counterparts. In most cases, our Members can only survey their commercial external counterparts to determine the status of their programs and where possible, as customers, make future business decisions based on the information received in these surveys. This unfortunately is not a choice in the case of interfaces with domestic and international government agencies with which they are required to provide information and/or otherwise interface. In this respect, we will help to identify these external interfaces and, as an association, seek to assure that complete and accurate information is being provided to the regulated community as a whole.

Third, we would be pleased to work with your Committee and interagency groups formed as part of the President's Council on the Year 2000 Conversion project. This participation will be critical to ensure that all public/private sector interfaces are identified and Y2K issues associated with them are adequately addressed. It is only with this integrated or "macro" approach that the "seamless" transportation system enjoyed by our nation will continue to operate without interruption as the critical Y2K dates approach.

Finally, we ask that you consider the Y2K issue as a management issue rather than a computer issue as many do. As with any management issue, the problem must be defined and a resolution identified. Certainly, part of the resolution includes the technical evaluation of computers and equipment containing embedded chips, but an equally important part of the resolution is understanding the input/output sources and interfaces associated with these systems. This is the responsibility not of the information technology experts who designed the system, but rather the operating personnel who use them on a daily basis. It is these operating managers that understand fully the interaction of the many systems involved in the day to day operation of their business and it is only these managers that can conduct the macroscopic view necessary to identify the critical interfaces in their business systems and with the external systems, be they private or public.

Thank you for the opportunity to provide testimony on this important issue. We stand ready to assist in any way beneficial to the successful resolution of the Y2K problem in the marine transportation industry.

U.S. Department
of Transportation

**United States
Coast Guard**

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United States Coast Guard

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DEPARTMENT OF TRANSPORTATION

U. S. COAST GUARD

STATEMENT OF
REAR ADMIRAL GEORGE N. NACCARA, USCG

ON

YEAR 2000 (Y2K) READINESS OF THE UNITED STATES COAST GUARD

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

HOUSE OF REPRESENTATIVES

October 7, 1998

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Good morning, Mr. Chairman and distinguished members of the Committee. I am Rear Admiral George Naccara, the Coast Guard's Chief Information Officer. I have responsibility for the Coast Guard's Year 2000 (Y2K) project. I want to thank you for giving me the opportunity to testify before you today.

Today I want to address four major aspects of the Coast Guard Y2K project. They are repair of our own systems, our contingency planning initiatives, our outreach to the maritime industry and boating public, and the cost of all of these efforts to the Coast Guard.

The Coast Guard is keenly aware of the potential for disruption posed by the so-called millennium bug, both in Coast Guard readiness, as well as in the maritime economy. In fact, the Coast Guard experienced a Y2K disruption in early 1997 -- we had a failure in a software program at the Coast Guard Institute in Oklahoma City. The program triggers an informational mailing to all enrollees of Coast Guard correspondence course with a 3-year completion window. In January 1997, the 3 year window suddenly fell beyond the start of the new millennium, and the program, unable to interpret the "00" completion date correctly as the year 2000, malfunctioned and deleted hundreds of student records. The staff at the Institute required 2 weeks to correct the problem. It was a sobering wake up call. Our industry partners have learned similar lessons. One major shipper told of spending thousands of dollars to identify and replace systems on their ships potentially affected by the Y2K problem, only to experience a subsequent Y2K failure on one ship after an on board power loss. Those that have had these experiences are very focused on timely repair of their systems, as well as preparing for all contingencies.

The Coast Guard Y2K Program

We are engaged on two major fronts in dealing with this serious international concern. First, we are working diligently to ensure our own information technology is ready for the millennium. Our motto is "Semper Paratus" -- Always Ready -- and in consonance with that, we want to ensure that we can continue to deliver our marine safety, environmental protection, search and rescue, and maritime law enforcement services to the public without interruption. On that score I am pleased to report that we are making good progress, and we expect our boats, ships, and planes will be ready and operating on January 1, 2000. In addition, our managers and technical staffs are repairing the administrative and support systems that underpin our operations, and we expect them to be repaired and working when the new millennium dawns.

Let me give you the specifics. As you can imagine, in 190 aircraft, 225 cutters, thousands of small boats, and 15,000 facilities of all sizes nationwide, the Coast Guard has a sizable inventory of computer systems, software applications, and electronic equipment. The list includes large operational systems like the Automated Mutual assistance Vessel Rescue System (AMVER) and the Marine Safety Information System (MSIS), large personnel and financial systems like our pay and personnel system (PMIS/Jumps) and Large Unit Financial System (LUFS), and other equipment like telephone switches and radio consoles. Of our total inventory of systems, we reported 75 as mission critical to the Office of Management and Budget (OMB). As of September 30, we have renovated 66 of the 75 systems, and expect to complete the renovation, testing, and implementation phases on all but one of these by March 31, 1999, the OMB completion date. For example, the Finance Center Information Resource and Management System (FIRMS) and the Aviation Maintenance Management Information System (AMMIS), have fallen behind the OMB milestones for renovation, but we expect to have these systems renovated, tested, and implemented as well by the end of March 1999. Though we are very concerned about the delay in completing renovation work on these systems, we remain confident that they will be implemented by the final OMB milestone of March 31, 1999. One mission critical system, the Vessel Traffic Service (VTS) in Valdez, Alaska, cannot be repaired by March 31, 1999. All told, I can say with confidence that all Coast Guard mission critical systems will be ready well before the dawn of the millennium.

In addition, we are paying special attention to other systems which, though they may not be on the mission critical list, support our Coast Guard personnel, such as medical or training systems. We want our members and their families to suffer minimal disruption.

On the operational front, we are taking a fresh look at our ships and aircraft as integrated operational systems, and undertaking steps to ensure that they are ready. During 1999, we expect to participate with the Navy in operational evaluations of these platforms as part of field exercises intended to validate our readiness. For example, and as you may be aware, the Chairman of the Joint Chiefs of Staff has canceled the major annual joint service exercise "Positive Force" for 1999. In its place, the Services will engage in "Positive Response Y2K," with a focus on the Y2K readiness of participating services' operational assets. I anticipate the Coast Guard will be approached to participate in other related activities during 1999, which my staff likes to call "the year of the contingency plan." The Coast Guard will leave no stone unturned to prepare its technology for the millennium, but will also be ready to continue responding to the call even if a piece of technology lets us down. We will be "Semper Paratus," as our motto states.

Contingency and Continuity of Operations Planning

Despite the feverish pace of repair work inside and outside the Coast Guard, two things are certain. One is that not all government, business, or industry systems will be repaired in time. On that score, the Coast Guard may be more fortunate than others within the Federal government, as the scope of our repairs is manageable. By the end of 1999 we can expect to complete repairs not only to all of our mission critical systems, but also to most other systems that may not have been designated mission critical, but are important to our operations. The second certainty is that errors will surface in repaired systems, both during testing and then during actual operations. Independent testing contractors have found error rates from 2 to10 percent in systems that have been repaired and tested by their owners. For this reason, the Office of Management and Budget prudently requires that all systems have workable contingency plans in place in the event of system failure. Though our focus as a Service has been on the 75 mission critical systems, we have directed our unit commanders and Headquarters program managers to prepare contingency plans for all systems that are important to the functioning of their units.

To prepare on a national level, the Coast Guard has launched a continuity of operations initiative called Operation Millennium Approach/Millennium Dawn. We recognize that even if Coast Guard systems and equipment are prepared for the year 2000 rollover, there is the potential for failures across the country, in public infrastructure, among our suppliers and business partners, and in the industry we regulate. To properly prepare for external disruptions that may impact the Coast Guard, we are convening a planning meeting in St. Louis on October 8, 1998 to be attended by the Area and District Chiefs of Staff. They will inventory and evaluate the range of possible Y2K impacts upon the Coast Guard from region to region, determine the Service-wide, Incident Command System (ICS) based organization needed to be fully prepared to respond to disruptions while continuing operations, and issue planning guidance for Coast Guard-wide use. By mid-1999, the team will issue guidance for Operation Millennium Dawn which will spell out actions to be taken across the country by all levels of the organization. In addition, as efforts ramp up to prepare a coordinated Federal-level response organization with agencies such as the Federal Emergency Management Agency and state and local

Emergency Operating Centers, we will be configured to establish liaison points and interact seamlessly with such a Federal-level organization.

I should point out that since Y2K is a global phenomenon, it is possible that a Y2K-ready Coast Guard could be called upon to assist others who have failures, including other U. S. government agencies, the maritime industry and boating public, and even other governments in the hemisphere. Our Y2K readiness could carry us beyond our shores.

Outreach

The second major focus of our program is our outreach efforts to help ensure the success of our partners and customers in the marine industry in dealing with their Y2K problem. The United States economy is extraordinarily dependent upon maritime shipping. I only need mention that according to the Energy Information Administration, more than 50 percent of the oil consumed in this country comes to us from foreign sources through our ports. Add to this the fact that 95 percent of all the overseas cargo entering the U. S. comes via our ports, and over 97 percent of that comes in foreign ships. Any disruption of the cargo and especially oil flow, for even a few days, would have a discernable effect on our economy, particularly during the winter heating season. We are anxious to ensure that the ships and ports are ready. In consonance with the call of Mr. John Koskinen, Chairman of the President's Council on the Year 2000 Conversion, to build Y2K awareness with our partners in the maritime industry, we have mounted several outreach initiatives. At my direction, regional Y2K awareness conferences have been scheduled for this fall and early winter on the East, West, and Gulf Coasts, as well as in the Great Lakes region and on the Inland Rivers. Over a thousand representatives of maritime companies will attend these conferences to learn more about what their counterparts are doing, and to share best practices in Y2K project management. We have created a Y2K awareness brochure that is being distributed by 46 Captain of the Port offices around the country. They will be distributed to the masters of vessels, both foreign and U.S., that we board during routine inspections, to facilities operators and cargo transfer terminals and to participants at local industry days hosted by our Captains of the Port. They will also be distributed by thousands of our Coast Guard Auxiliarists at boating safety courses, courtesy marine examinations, and boat shows to the recreational boating public. We have put information about Y2K on our web sites, and information on the Global Positioning System rollover issue is being broadcast by our Navigation Information Center. We published a notice on the Y2K problem and the marine industry in the Federal Register, and on the international scene, we succeeded in persuading the Maritime Safety Committee of the International Maritime Organization to publish a circular on the Y2K issue. We will continue these efforts into 1999, with an increased emphasis on the importance of contingency planning. We are considering a requirement for contingency plans at the port level. We are also encouraging existing maritime associations and port safety committees to establish Y2K readiness planning groups, and to establish port readiness web sites to disseminate information on the status on Y2K issues in the port and how they are being addressed.

It is worthwhile to note, in connection with outreach, that the Coast Guard is stressing aggressive Y2K education and awareness building in its approach to the maritime industry. By working cooperatively with industry, and capitalizing on the powerful economic incentives they have to avoid delay, we can help to ensure they prepare their technology for the millennium. Also, we will exercise our authority to ensure safety in our ports and on board vessels, and ensure vessels are safe and seaworthy. We are putting the word out that ships that have problems may be restricted in their movements based on the criticality of the ship's system that is inoperative and its effect on the ability of the vessel to proceed safely. The root cause of the system's problem may be related to Y2K; if this is the case, the ship will have to demonstrate that this error has been corrected before the restrictions will be lifted. For example, if a vessel entering port conducts the required steering test and detects a problem, regardless of cause, it must be reported immediately to the Coast Guard Captain of the Port who will take appropriate action to control the movement of the vessel in light of the steering problems. If the cause of the system malfunction is Y2K-related, that problem must be corrected before the ship may proceed on its way unrestricted. As stated, the shipping company is motivated by economic incentives to correct problems, and get their vessel back into service.

I would like to say that our port evaluations to date indicate no major problem in this regard. Most larger companies take the Y2K problem very seriously, and have active projects in place to deal with it. Some smaller companies are only now becoming aware of the problem. I recall the representative of a small tug and barge company who spoke at our conference in Hampton Roads last month. Once alerted to the seriousness of the problem, the company moved promptly to replace affected systems.

The Cost of the Y2K Efforts

Needless to say, the repair, contingency planning, and outreach efforts we have undertaken entail significant costs. The estimate for overall Coast Guard Y2K costs stands today at $34 million, including approximately $10 million already incurred through fiscal year 1998. I hope the Committee will work with us in doing all that can be done to make sure the Coast Guard, the maritime industry, and the U. S. economy are not significantly disrupted by the Y2K problem starting a little less than a year from now.

I will be happy to answer any questions you might have.

STATEMENT OF ALVIN M. PESACHOWITZ
CHIEF INFORMATION OFFICER
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

OCTOBER 7, 1998

Mr. Chairman and Members of the Committee:

I am Alvin M. Pesachowitz, Chief Information Officer of the Environmental Protection Agency (EPA). It is an honor for me to be here today at this hearing on the impact of the Year 2000 (Y2K) technology problem in the water resources area. We are pleased that the Committee is highlighting the urgency of this problem and the need for attention from the highest levels of government and the private sector. EPA welcomes your interest and involvement in this critical issue.

Before addressing specific drinking water and wastewater treatment Y2K issues, I would like to characterize EPA's progress toward internal Agency Y2K compliance, as well as our efforts to engage a wide variety of public and private organizations in our common goal of Y2K readiness.

As a first step, a Y2K Project Team was formed to oversee all EPA Y2K responsibilities including: 1) promoting awareness throughout the Agency; 2) coordinating Agencywide assessment and system repair; 3) providing internal guidance and technical expertise; 4) monitoring the status of Y2K problem resolution; 5) coordinating a systematic environmental sector outreach effort; and, 6) providing staff support for EPA's participation in the President's Council on Year 2000 Conversion, chaired by John Koskinen.

Second, the Agency began to develop specific outreach strategies for key environmental constituents and stakeholders. Targeted outreach strategies have been developed for air, water, waste, chemicals, pulp and paper, manufacturing/metals, regulatory compliance, and enforcement.

Finally, under my direction as the Agency's Chief Information Officer, we have created a Senior Management Council, consisting of executives from each of EPA's program offices and Regional Offices. The Council ensures that EPA's ability to fulfill its environmental mission is not impacted by the Year 2000 "bug," that policy issues and cross-cutting issues related to Year 2000 are examined as management priorities, and that an effective system of outreach to affected constituencies is in place so that environmental service delivery is not disrupted on January 1, 2000.

EPA has implemented a management strategy to assure Agency systems and equipment are technically compliant. That strategy includes assessment, repair, verification, and certification steps. The Agency has evaluated all mission-critical systems for vulnerability and has established system-specific compliance schedules for all vulnerable systems. Forty-six of our fifty-eight mission-critical systems are now compliant, pending verification by an independent source. All five of the Agency's water-related, mission-critical systems are now compliant.

These include: the Safe Drinking Water Information System (SDWIS), the Storage and Retrieval of Water Quality Information (STORET) System, the State Revolving Fund (SRF), the Needs Survey (NEEDS), and the Permit Compliance System (PCS). In addition, as part of the Government-wide data exchange with States, we have documented six external water data exchanges which will soon be addressed. EPA is on schedule to reach compliance on the balance of its mission-critical systems by the Government-wide due date of March 31, 1999. In fact, the Subcommittee on Government Management, Information, and Technology of the House Committee on Government Reform and Oversight recently recognized EPA's progress by assigning a grade of "B" for our Y2K compliance efforts for this past quarter, and we remain in OMB's top tier ranking of agencies' progress.

We are also undergoing a significant effort to conduct detailed assessments of our non mission-critical systems, central and local infrastructure, and buildings and facilities. Detailed action plans, organized by OMB's implementation phases, are being developed. Progress reports indicate that 85% of the non mission-critical systems in Headquarters have been assesssed, and 30% are compliant. One-hundred percent of the non mission-critical systems in our Regional Offices have also been assessed, and 30% are compliant. Aggressive steps are underway to repair, replace, or retire assets not yet in compliance.

Sector Outreach

As a regulatory agency, EPA's primary constituents for its core business activities are our co-regulators in the fifty States. This audience represents a primary partner for us in assuring we are able to regulate and monitor the quality of the nation's regulatory programs. The States are crucial to EPA's ability to perform its regulatory functions as well as key players in the delivery of local environmental services and in protecting environmental quality. We have recently begun to broaden outreach activities to include more directly EPA's Regional Offices and specific State entities involved in managing environmental programs.

At the same time, EPA has embraced the challenge to ensure a broader focus on awareness and preparedness in private sector activities whose action or inaction could affect protection of public health or the environment. In addition to focusing internally on the EPA systems critical to our Federal mission, the Agency is actively managing a series of outreach efforts with important stakeholders and constituencies.

The goal of our outreach effort is to: 1) promote nationwide awareness in the environmental community; 2) encourage coordinated assessment and sector-wide planning; 3) point stakeholders to technical assistance and guidance in readying and repairing their systems and equipment; and, 4) encourage stakeholders to develop contingency plans, as appropriate.

EPA's internal environmental sector representatives for air, water, waste, chemicals, pulp and paper, manufacturing/metals, and regulatory compliance and enforcement have developed detailed sector outreach plans. These plans have been posted to EPA's Internet Site **(HTTP://WWW.EPA.GOV/YEAR2000)** so that they are available to the public and members of the regulated community. Each plan clearly identifies constituent organizations/key stakeholders, defines specific awareness-raising events and opportunities as well as plans to promote awareness and encourage assessment. EPA continues to address events along sector lines, conduct focused stakeholder meetings, and provide information for use in memoranda, articles, and speeches.

Now let me turn specifically to the subject of Y2K conversion in the water and wastewater areas. EPA is working hard with our nation's public and private utilities to assure that the nation's drinking water supplies and wastewater treatment capabilities are not impaired as we reach the Year 2000. As the agency chiefly responsible for the quality of our nation's water and the safety of our drinking water, EPA has the lead for the drinking water and wastewater utility sector under the President's Council for Year 2000 Conversion.

Under our mandate to protect the public health and the environment, EPA sets water quality criteria and provides assistance and technical support to States, tribes, and local governments. States generally issue permits and monitor compliance, and the nation depends on our local drinking water and wastewater utilities to take the steps to maintain the quality of our drinking water supplies and to clean our wastewater.

EPA is working with the municipal and private utilities to help them address this problem, implement plans to assess and repair problems when found, make contingency plans, and keep their customers and the Federal, State, and local governments informed of progress. As a Federal regulatory agency operating within our mission and means, EPA has as its role to strongly and actively encourage and complement these efforts to the best of our ability.

Now I would like to provide a brief overview of the problem and the potential impact of the "Millennium Bug" on drinking water and wastewater treatment plants. I will then discuss our findings about the state of Y2K readiness and the outreach efforts to facilitate awareness of the problem, to encourage plant managers to actively work to fix it, and to provide access to information and support, as necessary. I will also identify some potential problems that are beyond the utilities' control but could impact utility operation. I will also address contingency planning.

You will be hearing directly from members of the drinking water and wastewater utility industry as well as trade and professional association representatives, so I will not go into great detail describing them and their operations. However, I think it is important for you to have a picture of the somewhat diverse "community" that treats and safeguards our nation's water to better understand the potential impacts of the Year 2000 technology problem and to have a context in which to talk about our efforts at EPA.

Characterization of the Problem

As I have said, the drinking water and wastewater utilities are a diverse community. First, to characterize them: they are owned by local governments and private companies; they range in size from small--serving communities anywhere from 25 to 3300 people--to large--

which serve populations of over 100,000. They are designed to serve communities ranging in size from trailer parks to large cities.

With respect to their operations, drinking water and wastewater utilities deal with the specific water quality problems in their localities. Their methods of treatment vary. As you might guess, the treatment systems also vary greatly in their degree of automation and sophistication, with the larger plants being heavily automated while some of the smaller plants have little, if any, computerized equipment. However, many plants, both large and small, have individual pieces of equipment that have embedded computer chips. Larger plants depend on computerized control systems that run plant operations based on information received from sensing and monitoring instruments. These systems are known as Supervisory Control and Data Acquisition, or SCADA systems. It is critical that steps be taken to ensure that this equipment continues to operate properly on and after January 1, 2000.

Fact Finding and Outreach Efforts

EPA's approach to understanding the nature and extent of the Y2K problem has been through numerous and continuing contacts with trade and professional associations and utilities. A list of the trade and professional associations with which we have consulted is attached. We have also made a number of site visits to gain a better understanding of the types of problems that the utilities must solve, their Year 2000 readiness, and the contingency plans they have made. Based on these discussions and site visits, we believe that most of the large drinking water and wastewater plants are aware of the problem and are actively taking steps toward corrective action.

We continue to be concerned, however, about the readiness and the level of awareness of the small and medium-sized plants. Although they are generally less automated than the larger plants--and some of the smaller plants may have little, if any, computerized systems or equipment--without examination and assessment, it is hard to predict whether these plants are prepared. Plant managers have said that much of the equipment in these medium and small plants contains embedded chips that are not date sensitive, but rather are sensing devices. Nevertheless, we are encouraging all plants regardless of size to assess, correct, test and validate, implement, and plan for contingencies.

EPA has held two water utility stakeholders meetings with representatives from some of the largest national drinking water- and wastewater-related trade and professional associations, such as the American Water Works Association (AWWA), the Association of Metropolitan Sewerage Agencies (AMSA), the Association of State Drinking Water Administrators (ASDWA), the American Society of Civil Engineers (ASCE), and the Water and Wastewater Equipment Manufacturers Association (WWEMA).

During our discussions, several of the associations said they had surveyed their members. They were careful to state that the surveys did not represent a statistical sampling, but rather, served as "indicators" of Y2K readiness activities. Their representatives will undoubtedly be sharing the survey results with you. Although these surveys might not provide a precise picture of the state of readiness, they do indicate that the larger plants are dealing with the problem. We are very appreciative of the efforts of AWWA, AMWA, AMSA, and the National Association of Water Companies (NAWC) in this regard.

Since a common thread for many of these plants is the equipment used, the Water and Wastewater Equipment Manufacturers Association (WWEMA) has stated that based on its own survey, equipment built since the early 1990's is Y2K compliant, equipment from the late 1980's to early 1990's needs to be tested, and equipment installed prior to the late 1980's may need to be replaced.

As part of EPA's initial outreach efforts to the drinking water and wastewater utilities, we have prepared an informational fact sheet, attached to this testimony, to be provided to States, tribes, local governments, EPA Regional Offices, and to the regulated entities through trade associations as conference handouts and for inclusion in letters to their membership. Our fact sheet summarizes the Y2K problem and the six-step approach we recommend. These steps are: awareness, assessment, correction, testing and validation, implementation, and contingency planning.

We are also preparing an article for submission to trade association publications and other appropriate journals and newsletters. This article provides further details on the six-step approach as well as a checklist for plant managers to use to assess and repair problems. We have already established an EPA Water Sector Y2K web page with linkages to related sites, including those of trade and professional associations.

We will also encourage utilities to conduct their own outreach by communicating with their customers to reassure them that this issue is receiving the kind of attention necessary to ensure that utility customers will experience "business as usual" on January 1, 2000. We will continue to work with trade and professional associations, our Regional Offices, States, tribes, and other Federal agencies to increase awareness and offer assistance, especially to smaller systems which may not have the resources to help themselves. EPA staff members are available to speak at conventions and meetings on this important issue.

External Factors

Let me now address some external factors beyond the control of these utilities. Most significantly, these are the electric and telecommunications utilities and our transportation system. Most drinking water and wastewater treatment systems cannot operate without an outside source of electricity. Wastewater treatment utilities have some ability to generate electric power themselves and to be able to operate in an emergency for a short period of time. Most drinking water plants do not. Therefore, should the country experience electricity failures, some of our drinking water utilities may not be able to operate and will need to depend on their storage reserves or on other facilities' water supplies. We should remember that these facilities have had short-term outages during natural disasters such as hurricanes, floods, and ice storms. In most instances, good planning has resulted in quick recovery.

In addition, suppliers to the treatment systems, such as chemical companies supplying chlorine and fluoride, could be subject to their own Year 2000 problems or transportation problems, resulting in lack of supplies needed for water treatment. We are encouraging drinking water and wastewater utilities to meet with external suppliers such as the power utilities, telecommunications utilities, and chemical and other material suppliers to ensure that their contingency plans address the potential inability of these entities to deliver needed materials and services.

Contingency Planning

Given the status indications I discussed previously and the early Y2K test results which have been generally positive, we are guardedly optimistic that our drinking water and wastewater utilities will have few, if any, problems on January 1, 2000. However, contingency plans are still necessary. We are continuing to focus our efforts on medium and small plants to ensure continued progress and contingency planning.

EPA has listed contingency planning as one of the steps in our six-step approach. Contingency plans should address not only interruption of operations due to a Year 2000 failure in the treatment system, but also interruption of operations due to a failure external to the treatment system, such as a power failure.

In speaking with representatives from utilities and trade associations, we have learned that contingency planning relies on manual operation of these plants. Most drinking water and wastewater treatment plants can be operated without SCADA or automation and, in fact, are operated in the manual mode from time-to-time. In addition, most large drinking water systems have two to five days storage capacity and have been designed, in some cases, to supply water by gravity while major repairs are underway. Some of our drinking water plants have the advantage of being able to share water supplies with other local drinking water utilities. They regularly buy and sell drinking water among themselves and can provide back-up for one another should circumstances warrant. In the unlikely event that water being produced does not meet health standards, "boil water" notices for microbial problems can be issued or residents can be advised to use alternate drinking water sources to avoid microbial or other contaminants, such as nitrates.

Even though manual operation is feasible and provides a means of operation in the event of computer or equipment failure, I believe this raises another concern -- that of the availability of the workforce needed to sustain manual operations for any significant length of time and the ability of the utility to afford a higher payroll. This is another consideration that we recommend be addressed in contingency plans.

Permit Violations

With respect to legal implications of plant failure as a result of permit and drinking water standards violations, EPA's major focus is on preventing failure rather than preparing to take enforcement actions. However, general guidance indicates that violations resulting from failure to achieve Year 2000 compliance will not be given a blanket waiver. Year 2000 violations will be evaluated on a case-by-case basis to determine the most appropriate enforcement response.

EPA expects all water and wastewater facilities to be in compliance with environmental regulations before, during, and after the Year 2000.

Recommendations

With respect to your call for recommendations as to how the Committee can be most helpful in this area, we offer the following suggestions. First, your support would be welcome for bipartisan legislation now pending in the Congress which extends limited safeguards for industry in matters of liability, confidentiality, and antitrust when companies make good faith efforts to share Y2K information with their competitors and customers about their products and processes. Second, your encouragement of other infrastructure-related sectors, including utilities and telecommunications, to move swiftly toward Y2K compliance could also be decisive. These sectors can greatly enhance the ability of the drinking water and wastewater service areas to be ready on January 1, 2000.

Summary

In closing, I would like to say that the drinking water and wastewater utilities are making good progress in their efforts to identify and fix potential Y2K problems. We continue to reach out to these utilities to ensure that their diverse entities -- large and small -- have identified these problems and have access to important and useful guidance and information. I would also like to commend the trade and professional associations for bringing this issue to the attention of their members, providing information and assistance, conducting surveys, and generally supporting Federal, State, and local government efforts to ensure that this problem is addressed.

Thank you for the opportunity to discuss this important issue today. I would be happy to answer any questions you may have.

Contacts Made by EPA Regarding Year 2000 Issue

Trade and Professional Associations
American Society of Civil Engineers
Water Environment Federation
Water and Wastewater Equipment Manufacturers Association
American Public Works Association
American Water Works Association
Association of State Drinking Water Administrators
Association of Metropolitan Water Agencies
National Rural Water Association

Utility Management Organizations
Association of Metropolitan Sewerage Agencies
Association of State and Interstate Water Pollution Control Administrators
National Association of Towns and Townships

Computer Control and Telemetry System Suppliers
Digital Systems
Information Technology Association of America
Wallace and Tiernan
Bailey-Fisher and Porter
Instrument Society of America

Water Treatment Equipment Manufacturers
Allen Bradley
Kinetico and Memcor

Consulting Firms
CH2MHILL
SAIC
Roy F. Westin

Wastewater Treatment Facilities
Los Angeles County Sanitary Districts
Metropolitan Sanitary District of Greater Chicago
Washington Suburban Sanitary Commission

Metropolitan Sanitary District of Greater Chicago
Washington Suburban Sanitary Commission
Alexandria Sanitation Authority
Arlington County
Fairfax County
Prince William County Service Authority
Hampton Roads Sanitary District
Alexandria Sanitation Authority*
Upper Occoquan Sewer Authority*
Prince William County Service Authority*

Drinking Water Treatment Facilities

Washington Aqueduct Division
King Brook Rural Water District
Des Moines Water Works
Orange County Water Plant*
Chapel Hill, N.C., Water Plant*
Dalecarlia Water Plant*
Fairfax County Water Authority, James J. Corbalis Plant*

(* = Site Visit)

EPA
United States
Environmental Protection
Agency

Office of Water
(4102)
Washington, DC 20460

EPA 800-F-98-001
September 1998

WHAT is the problem? Most people have heard that a major computer problem is on the horizon for January 1, 2000. The issue is called Year 2000, Y2K, or the "Millennium Bug."

Many computerized functions require recognition of a specific year, day and time, but most computers and computerized equipment recognize only the last two digits of a year's date (i.e. 1998 is 98; 2000 is 00.)

Therefore, when the calendar changes to the year 2000, many computers and equipment with embedded computer chips will have difficulty interpreting the correct date; they may interpret the year to be 1900 or some other year.

A number of things are likely to happen: some computers and equipment will "crash"; others will operate erroneously; others may simply stop and need to be restarted; some may create data that looks correct but in reality contains errors; and some may continue to operate correctly.

WHY is the Environmental Protection Agency (EPA) concerned? EPA's mission includes helping to assure safe and clean water for all Americans. EPA does this by providing technical assistance as well as other kinds of help to drinking water and wastewater treatment plants, which are owned and operated by local government or private utility companies.

Many of these plants operate with some level of computerization. Thus, monitoring, operations and maintenance, communications, laboratory analysis and reporting are areas that should be assessed for potential Year 2000 computer-related problems. These types of problems could lead to permit violations.

EPA is helping local government and private utilities become aware of this potential problem. It is important that utilities have an opportunity to make changes or contingency plans that allow for "business as usual" on January 1, 2000 and that these utilities continue to protect public health and the environment.

WHEN is action needed? Time is running short. Action is required now.

If you are a drinking water or wastewater treatment plant owner or operator, you should be aggressively acting now to protect your system from computer caused failures on January 1, 2000.

HOW should a utility address this problem? EPA recommends a six step approach to help ensure normal operations on January 1, 2000.

AWARENESS -- As Soon As Possible

First, owners and operators of drinking water and wastewater treatment plants, and equipment manufacturers, communications and energy providers that support them need to be made aware that the problem is pending. EPA is working to distribute information through fact sheets, newsletters, conferences and other channels, and invites others to help. Owners and operators may wish to prepare for customer inquiries about the situation and what steps are being taken to ensure continued high quality drinking water and wastewater.

ASSESSMENT -- As Soon As Possible

Assessing the extent of the problem is the next step. Owners and operators should locate and list all computerized equipment and equipment with embedded computer chips in their systems and determine which are vulnerable. To begin assessments, they can refer to equipment owners manuals and equipment manufacturers, plus a general EPA checklist of potential trouble spots, available at www.epa.gov/year2000/ow.

CORRECTION -- by 6/30/99

Once the problem areas have been identified, correction of the systems should occur. This can involve modification, repair or replacement of systems or components. There are diagnostic programs available as well as consulting firms and computer specialists that can assist in making the necessary corrections. Some of this information is also available on Year 2000 Websites.

CONTINGENCY PLANS -- Draft by 6/30/99; Final by 9/30/99

As a back up measure, all systems should have a contingency plan to deal with unforseen problems and emergencies. Among other things, these plans should address how systems would be manually operated until the computerization problems are resolved. These plans should be developed simultaneously with the correction phase, and revised after the testing/validation phase.

TESTING/ VALIDATION -- by 7/31/99

Running tests on the system to make sure the corrections fixed the problem is the next step. These tests should be run as soon as possible after assessment and correction in case additional changes need to be made. Independent verification of the test may be appropriate in some cases.

IMPLEMENTATION -- by 9/30/99

Once the systems are readjusted to operate correctly, they should be retested and revalidated. Then they are ready for implementation.

WHERE is help available? For further information and help, visit the EPA Year 2000 web site at www.epa.gov/year 2000/ow.htm. There you will find an EPA checklist that can serve as a starting place for checking basic systems. Manufacturers and industry experts can provide advice on specific systems. Other information is posted there too.

STATEMENT FOR THE RECORD

LACY SUITER

EXECUTIVE ASSOCIATE DIRECTOR

RESPONSE AND RECOVERY DIRECTORATE
FEDERAL EMERGENCY MANAGEMENT AGENCY

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

UNITED STATES HOUSE OF REPRESENTATIVES

OCTOBER 7, 1998

Mr. Chairman and Members of the Committee:

Good morning. I am Lacy Suiter, Executive Associate Director for Response and Recovery, Federal Emergency Management Agency. FEMA Director James Lee Witt has asked me to testify at this hearing on his behalf and I am pleased to have this opportunity to appear before you. I would like to describe FEMA's efforts to address the potential threat posed by the Year 2000 (Y2K) technology problem for fire services and emergency management within the United States.

FEMA'S ROLE IN THE PRESIDENT'S COUNCIL ON Y2K CONVERSION

FEMA has a role as one of thirty-four sector coordinators supporting the President's Council on Y2K Conversion, chaired by Presidential Advisor, John A. Koskinen. FEMA chairs and coordinates efforts of the Emergency Services Sector (ESS) working group. Primary member agencies include FEMA, the Departments of Agriculture, Commerce (mainly the National Oceanographic and Atmospheric Administration), Defense, Health and Human Services, Interior, and Transportation. The American Red Cross participates as an honorary member. FEMA and the other Emergency Services Sector members are responsible for increasing awareness of emergency services providers throughout the Nation and for encouraging them to assess the readiness of their technology-based systems to support operations before, during, and after the clock rolls over to the year 2000. It is important to clarify that FEMA does not have a role in repairing the billions of bytes of public and privately held computer code infected by the Y2K bug. FEMA does not have the regulatory authority or the technical expertise required to do so.

The goal of the Emergency Services Sector is to facilitate efforts to ensure that all members of the nation's emergency services community will be able to operate normally through the Y2K conversion period. The other sectors are working toward the same assurances in their areas, with the shared goal being that Y2K disruptions will be of minimal consequence. The objectives of the Y2K Emergency Services Sector Working Group are to:

- Develop coordinated outreach plans and communications to State, local, and private sector groups in fire and emergency services (including the volunteer agency community);

- Monitor progress of the sector; and

- Prepare for inevitable disruptions.

BRIEF ASSESSMENT OF GOVERNMENT PREPAREDNESS FOR THE YEAR 2000

The Emergency Services Sector, which met most recently on September 16th, will be providing reports to the President's Council in the coming months on the readiness of the sector as a whole. Readiness assessments are being conducted throughout the 34 sectors on the Council.

At the Federal level, all of the agencies are in the process of increasing awareness and fostering readiness self-assessments among their stakeholders. These user communities cut broadly across the Nation's infrastructure, involving both the private and the public sector. And the agencies themselves must be ready to cross the year 2000 threshold with high confidence that their own systems will work well. To this end, FEMA and the other Federal agencies report directly to the Office of Management and Budget (OMB), on a monthly or quarterly basis, regarding the progress being made with their own systems.

OUTREACH TO THE EMERGENCY SERVICES SECTOR ON Y2K

FEMA is working with other agencies in the Emergency Services Sector to develop an outreach action plan. The action plan will include three categories of activity:

- Meetings on Y2K convened by Federal Agencies;
- Outside meetings which Federal officials will attend in order to spread the word about Y2K; and
- Other communications on Y2K, such as letters, public notices, web site information, and brochures.

FEMA plans to post this information on its Y2K web pages during the next month, and to make all of this information accessible through www.fema.gov, as it becomes available.

The Emergency Services Sector members are actively reaching out to their respective constituencies. For example, HHS is in contact with hospitals, clinics, and other health-related facilities across the country. DOD's Corps of Engineers is working with the private sector contractors who provide services such as debris removal. These Federal agencies are heightening awareness and will provide assessments in the fire services community, emergency medical services community, the National Guard, and, of course, emergency management services, including the volunteer agencies supporting disaster response.

FEMA's outreach to the fire services community and State and local emergency management is described in more detail below.

Fire Services

FEMA's United States Fire Administration (USFA) has initiated a multi-phased plan to raise awareness and assess readiness on the Y2K technology problem. This approach was selected to take greatest advantage of the decentralized and independent structure of the fire services community.

Fire Administration staff issued a suggested article for the fire and emergency services publications on Y2K preparedness. Staff have also been interviewed by a variety of fire and emergency services publications for articles on the Y2K issue.

In August, FEMA developed a list of frequently asked questions regarding Y2K and their answers, and formatted them into a Y2K brochure. The brochure is made available to students attending classes at the National Fire Academy. The brochure has been mailed to the major fire service organizations and the State Fire Marshals, along with a cover letter asking them to help get the word out to fire and emergency services nationwide. The brochures are available for local distribution. FEMA also sent materials to associations of fire and emergency service equipment manufacturers and distributors, and asked them to share information on actions their members are taking to ensure that their products are Y2K compliant. FEMA is currently in the process of direct-mailing the Y2K brochure along with a cover letter to each of the approximately 33,000 individual fire departments across the country.

The Y2K brochure also directs people to related web sites, including the USFA web site. The web site includes a Y2K section which provides general information, frequently asked questions and answers, as well as basic testing tips that individuals and organizations can apply to determine if their equipment and systems are Y2K compliant.

Over the next few months, the Fire Administration plans to enlist the aid of State Fire Marshals in determining local fire service readiness for the Year 2000. Throughout FY99, Y2K will be featured as an important topic in speeches and conference displays developed for the fire and emergency services community.

State and Local Emergency Management

FEMA's Preparedness, Training, and Exercises Directorate provides grants, guidance, training, and exercise assistance to State and local governments to help them to prepare for all types of emergencies. FEMA has initiated activities to address the Y2K problem and is pursuing outreach activities with its primary constituents, the State and local governments, through their national organizations, the National Emergency Management Association (NEMA) and the International Association of Emergency Managers (IAEM). A main emphasis of this outreach effort is to heighten awareness of State governments, and indirectly of local governments, on the criticality of this issue and to provide Y2K emergency preparedness guidance and information.

At the September 1998 NEMA Annual Conference in Charleston, South Carolina, the new NEMA President led a discussion of Y2K and identified it as a priority area for the coming year. In fact, NEMA has already initiated dialogue with its membership on Y2K, and has assigned the NEMA Preparedness, Training, and Exercises Committee to review and coordinate efforts with FEMA. Committee officials participated in discussions with FEMA's Associate Director for Preparedness, Training and Exercises, and the Presidents of NEMA and IAEM on the importance of developing emergency preparedness measures and guidance to deal with potential Y2K issues. As a result, FEMA will work in partnership with NEMA, IAEM, and other organizations over the next several months to develop emergency preparedness guidance for the entire emergency preparedness community. Information on model State and local Y2K programs and practices will also be collected and shared.

FEMA's Regional Directors have been asked to contact the State Emergency Management Directors in their region to support this effort. The personal contacts will reinforce the importance of preparedness and compliance at the State level, emphasize the necessity of State outreach to local governments, and help to identify areas where additional specialized assistance is needed.

As part of FEMA's training activities, the Emergency Management Institute (EMI) has instituted a "Y2K Show-of-Hands Survey" at the beginning of every class, which includes the following questions:

- Are you aware of the potential problem facing all computer systems called "Y2K" that involves the computer's ability to accommodate the change to the year 2000?

- Is your organization actively working to ensure that its computer systems are able to deal with this potential problem?

- Are the computer systems in your organization currently fully prepared to successfully accommodate the change to the year 2000?

The survey provides immediate feedback on Y2K preparedness at all levels of government. More importantly, it raises the awareness of students at EMI and highlights the need for action. EMI is examining ways to insert Y2K considerations into the exercise scenarios for the Integrated Emergency Management Courses. Y2K considerations add value to an all-hazards curriculum by focusing attention on consequences and operational requirements that could also emerge during other types of technological emergencies. All students attending EMI resident classes receive copies of the Y2K brochure developed for the fire service community.

In November, FEMA's Associate Director for Preparedness, Training and Exercises will address the IAEM 46th Annual Conference in Norfolk, Virginia, to urge local emergency managers to participate in efforts to raise Y2K preparedness.

In February 1999, Director Witt will address the National Governor's Association on the status of several FEMA initiatives, including Year 2000 outreach, and offer suggestions on what the Governors can do to further the efforts to raise awareness, promote personal responsibility, and ensure operational readiness at all levels of government.

FEMA'S RESPONSIBILITY UNDER THE FEDERAL RESPONSE PLAN

The final element of our strategy, for which I am responsible as Executive Associate Director of Response and Recovery, is to ensure that if preventive measures fail, the signatory agencies to the Federal Response Plan are primed and ready to assist State and local governments with response to consequences of a Y2K problem affecting lives, property, and public health and safety. It is has been our experience that consequences of an order of magnitude to require assistance under the Federal Response Plan fall into a consistent set of functional areas, regardless of the type of hazard that caused the emergency. The Plan is organized to provide assistance to State and local governments in transportation, communications, public works and engineering, firefighting, information and planning, mass care, resource management, health and medical services, hazardous materials, food, and energy.

A Y2K technology problem will create two sets of needs. The first includes technological support to the owner/operator of the disrupted system, such as advice on technical work-around options, and repair or replacement of disrupted hardware, software, or networks. The Federal Response Plan is not designed to meet this need. This is the job of information technology professionals in each owner/operator organization, public and private, to address through internal business continuity plans, with the assistance of the President's Council on Y2K Conversion. The second set of needs includes emergency assistance to State and local governments, to enable them to continue to perform essential community services, such as issuing emergency warnings, disseminating public health and safety information, carrying out health and safety measures, reducing immediate threats to public health and safety, providing temporary housing assistance, and distributing medicine, food, and other goods to meet basic human needs.

It is difficult to determine the exact nature and extent of the threat posed by the Y2K problem. Reports in print and television media and on the Internet range from predictions of business-as-usual to some form of cyber winter. To identify and prioritize actions to take to ensure we are able to provide assistance to State and local governments, we need credible assessments from authoritative sources that describe specific vulnerabilities, areas at highest risk, and potential consequences that could lead to activation of the Federal Response Plan. We believe the President's Council on Y2K Conversion is an authoritative source for information on this hazard.

The Council is scheduled to release a report later this year that narrows down the risks and describes a plausible worst-case scenario. John Koskinen, Chairman of the President's Council on Y2K Conversion, attended our August meeting of the primary Federal Response Plan agencies, and stated that, domestically, he is most concerned about small- and medium-sized organizations (public and private); and over-reaction by the public. He believes that the basic infrastructure will work and that there will be no major nationwide catastrophic disruptions, but that there may be needs for Federal response in some service sectors and in some geographic areas.

Our primary operational objective will be, in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance (Stafford) Act, to respond to physical consequences on lives, property, and public health and safety. It is difficult to imagine a Y2K scenario that would trigger widespread physical consequences that threaten lives and property. However, a Y2K scenario could cause scattered disruptions in critical systems such as traffic control, communications, or power, which would complicate local, State and Federal efforts to provide disaster response. I am particularly concerned about rural areas in northern and western states in December and January, which is severe winter storm season. Our operations concept will be to activate monitoring operations through the critical conversion period here in Washington and in our regional operations centers, and to request information technology liaisons with access to FEMA internal and interagency sources of technology support. We may not be able to respond to requests for technology support, but we can use the Federal response system to provide a backup network to ensure that such requests from State and local governments are referred to the appropriate public/private coordination channels that have been established through the efforts of the President's Council on Y2K Conversion.

As we wait for the official assessment from the President's Council, I am continuing my monthly meetings with officials of the primary agencies of the Federal Response Plan to focus attention on potential needs and options. Agencies have reported that the majority of mission-critical facilities and support systems necessary to conduct Federal Response Plan operations will be functional through the Y2K conversion period. Agencies are developing work-around options for those that will not be ready by March 1999. FEMA is doing all that it can, as the lead agency for the Federal Response Plan, to encourage Federal Response Plan agencies to work with their partners in the State and local emergency management and fire service communities, to promote awareness and business continuity planning for Y2K.

The Y2K technology problem involves several dimensions and touches upon nearly every aspect of day-to-day business in the world. The efforts of emergency management and fire service organizations cannot be viewed as a substitute for personal responsibility and personal preparedness. Every organization and every individual, in public and private life, has an obligation to learn more about this problem and their vulnerability, so that they may take appropriate action to prevent a problem before it occurs. As elected leaders, you also play an important role in increasing public awareness and promoting personal initiative through a range of activities, such as this hearing. We in FEMA respect your concern and your commitment to this issue. At the same time, FEMA is working with the emergency management and fire services communities to raise awareness, to increase preparedness, and to stand ready to provide Federal response assistance to State and local governments, if required. We will keep you informed on our progress as the countdown to the new millenium continues.

AMERICAN WATER WORKS ASSOCIATION

NATIONAL ASSOCIATION OF WATER COMPANIES

STATEMENT OF

The American Water Works Association
The National Association of Water Companies

before the

Committee on Transportation and Infrastructure

U.S. House of Representatives

on

Review of Transportation and Infrastructure Issues Related to the Year 2000 Computer Problem

October 7, 1998

presented by

Michael P. Walsh, President
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AMERICAN WATER WORKS ASSOCIATION
NATIONAL ASSOCIATION OF WATER COMPANIES
BEFORE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

STATEMENT ON REVIEW OF TRANSPORTATION AND INFRASTRUCTURE ISSUES RELATED TO THE YEAR 2000 COMPUTER PROBLEM

OCTOBER 7, 1998

PRESENTED BY
MICHAEL P. WALSH, PRESIDENT
SHORELANDS WATER COMPANY
HAZLET, NEW JERSEY

INTRODUCTION

Good morning Mr. Chairman. I am Michael P. Walsh, President of the Shorelands Water Company in Hazlet, New Jersey. I am here today to testify on behalf of the American Water Works Association (AWWA) and the National Association of Water Companies (NAWC). I am also the current Chairman of the Small Companies Committee of the NAWC, past Chairman of the New Jersey Chapter of NAWC, current Chairman of the Legislative Committee of the NAWC New Jersey Chapter, and a member of AWWA. AWWA and NAWC appreciate the opportunity to present their views on the Year 2000 (Y2K) technology problem with respect to providing safe drinking water to the American people.

Founded in 1881, AWWA is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 55,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health professionals. The association's membership includes over 3,900 utilities which provides over 80 percent of the nation's drinking water.

NAWC is the non-profit trade association that exclusively represents the nation's private and investor-owned drinking water utility industry. Its membership of over 330 companies in 42 states provides drinking water to nearly 21 million Americans every day. The NAWC serves as the ambassador for the $3 billion industry that employs 15,000 people.

Shorelands Water Company has a twenty square mile service territory in northeast New Jersey serving an estimated population of 33,000 people through 10,000 connections. In size, Shorelands Water Company is on the borderline between small and medium sized public water systems; however, we deliver in excess of 1.7 billion gallons of water per year.

In today's statement I will discuss the Y2K compliance and contingency planning undertaken by Shorelands Water Company, provide observations regarding small/medium Y2K compliance in general and assessment of areas of great concern, present a summary of a joint Y2K preparedness survey conducted by AWWA, NAWC and the Association of Metropolitan Water Agencies (AMWA) concerning the Y2K preparedness of public water systems, and highlight steps that AWWA and NAWC have taken to alert public water systems to the potential Y2K computer problem.

Shorelands Water Company

In an effort to satisfy itself and be in a position to answer a multitude of inquires regarding Y2K from local county, state, and federal agencies, Shorelands has identified the following six items for investigation:

1. Production
2. Distribution and Storage
3. Telecommunications
4. Meter Reading
5. Billing
6. Accounting

Shorelands' assessment indicated that we are internally Y2K compliant for items 1 through 5. A new accounting package has been purchased which is Y2K compliant. Shorelands is now in the process of running the new accounting system parallel with the old system and anticipates changing over to the new system on January 1, 1999.

However, Shorelands' assessment of its own capabilities regarding Y2K also considered the domino effect that may result if critical vendors and/or suppliers fail to provide the following major items:

1. Electricity
2. Purchased Water
3. Fuel
4. Water Treatment Chemicals

Shorelands' ability to provide safe drinking water to our service area relies upon a large component of water purchased from another water supplier and delivered through a pipeline connection. Should that purchased water component fail to be delivered, Shorelands would rely on the two day supply of water in storage and would maximize its own production of potable water if electric power were still available from the local power utility. If a power outage were to occur simultaneously with a failure of the purchased water to be delivered, Shorelands, as well as many other small to medium community public water systems, has the capability to switch over to an internally generated power supply. In Shorelands, this backup power supply would not power the full system and relies upon diesel fuel stored on premises. Assuming the worst case scenario that the Y2K "bug" would have knocked out the purchased water supply, the power grid and the delivery of additional fuel, Shorelands could continue produce safe drinking water for three days. That together with the stored water in early January 2000 would result in a five day supply.

Monitoring of the transmission and distribution system relies upon the ability to utilize Shorelands' SCADA (Supervisory Control and Data Acquisition) system. This system allows us to open and close valves, start and stop pumps, as well as monitor tank levels and pressure. Should the power grid fail, those systems would also go down regardless of the fact that Shorelands' SCADA systems are Y2K compliant. Our newly installed phone system, while being in itself Y2K compliant, requires power. The Shorelands' meter reading system, the billing system or the accounting package, in the short-term, is not a great concern. Sending out bills and paying invoices may be deferred for a short period of time while not impairing Shorelands' ability to deliver safe drinking water.

Shorelands' contingency planning involves such things as topping-off fuel and chemical supplies near the end 1999. Obviously we would try to have the water storage tanks full and would have tested all relevant equipment to make sure it is completely functional. While many surveys ask and/or request that we secure guaranties from vendors that they will be able to provide materials and supplies, we have not found a willingness of vendors to provide these guarantees. This is completely understandable, since we are dependent upon purchased water supplies, purchased fuel, purchased electricity, purchased chemicals, and, therefore, cannot make such guarantees to our own customers. How could our suppliers be able to make such guarantees to us?

Many of the thousands of community public water systems smaller in size than Shorelands have less reliance on computers and, therefore, are less vulnerable to the Y2K problem internally. However, the common link between all community public water systems is a reliance on electric power grids and the ability of vendors to provide us with adequate chemical supplies and fuel. The ability of community public water systems to provide safe drinking water without being able to operate their production facilities in early January 2000 would be anywhere from a few hours to a few days. The ability to fight fires and public health concerns must be high priority items. Should it be determined that the power grid may fail, community public water systems must be placed at or near the top of this list for restoration of service. The joint AWWA, AMWA and NAWC Y2K preparedness survey of community public water systems indicates that community public water systems serving the majority of the Nation's population will be as ready as possible to continue to provide safe, adequate and proper water service through the millennium; however, the external providers of critical materials and supplies give the greatest concern.

YEAR 2000 PREPAREDNESS SURVEY

In July and August 1998, AWWA, AMWA, and NAWC conducted a joint survey of their member public water utilities to determine the Year 2000 preparedness of community public water systems to address potential computer problems caused by the change of date at the beginning of the year 2000.

The public water utility membership of AWWA, AMWA and NAWC consists of approximately 4,000 public water systems serving approximately eighty percent of the American public. The remainder of the Nation's 55,000 community public water systems which are not members of AWWA, AMWA or NAWC are primarily small rural public water systems which are members of the National Rural Water Association (NRWA) or not members of any of the four major public water system associations.

According to Environmental Protection Agency (EPA) statistics, 55,000 community public water systems serve a total population of 249 million people. However, the 3,687 community public water systems serving a population of 10,000 or more serve a total of 204 million people. Nearly all of these 3,687 community public water systems are members of AWWA, AMWA, or NAWC. The remaining community public water systems serve a total population of 45 million people. The remainder of the United States population obtain their drinking water from private wells.

Approximately 725 public water systems have responded to the survey. The responding community public water systems range in size from small systems serving less than 10,000 people to systems serving more than a million. While the number of respondents is a comparatively small sample of the total population of community public water systems, the data can be used to provide an indication and understanding of the state of preparedness of the Nation's community public water systems. However, it is also important to note that the state of preparedness of non-responding utilities is not known. This could introduce a bias into the results if a large number of non-responding utilities are also unprepared. These caveats should be kept in mind when evaluating the data of the survey.

Summary: Although a statistically valid projection may not be made from the survey data, the data provide the following tentative indications concerning the state of Y2K preparedness of the Nation's community public water systems:

- **Internal Assessment**: Overall, 81 percent of the community public water systems expect to complete internal Y2K work in time. The statistics seem to indicate that the overwhelming majority of the American people will not have their drinking water supply disrupted or made unsafe by internal Y2K computer problems of a community public water system. Smaller systems appear to be more vulnerable to disruption; however, although larger in number, the smaller systems serve a smaller portion of the population and most do not have computerized operations.

According to EPA statistics. approximately 75 percent of the American people are served by large community public water systems serving a population over 100,000 people. Based on the survey, community public water systems serving populations of 1,000,000 or more expect to complete internal Y2K work on time and can be expected to have little or minimal internal problems caused by the change of date at the beginning of the year 2000. There are 30 community public water systems in the United States which serve a population of more than 1,000,000. Approximately, 89 percent of the community public water systems serving a population of 100,000 - 1,000,000 expect to have Y2K compliance work done in time; 87 percent of systems serving 10,001 - 100,000 expect to have internal Y2K work to be completed in time; and 76 percent of systems serving less than 10,000 persons expect to have internal Y2K work to be completed in time.

- **External Assessment**: However, a smaller percentage (26 percent) of community public water systems, including very large systems, appear to have fully assessed the Y2K compliance status of service providers and vendors which could affect public water system operations or expect to have completed an external Y2K problem assessment before the Year 2000. This raises the possibility that some community public water systems could be affected by power outages, communications failures including data transmission, or a shortage of water treatment chemicals if their external service providers and vendors have Y2K problems.

- **Contingency Plans**: Most public water systems have contingency plans for natural disasters, etc., to operate and provide safe drinking water. This would include using manual operations instead of computer operations and, in a worst case scenario, issuing a "boil water" notice. Existing public water system contingency plans could be used or adapted for a system failure caused by a Y2K problem. However, a large number (83 percent) of public water systems indicated that they have not completed contingency plans. Since the majority of the community public water systems indicated that they expect to have Y2K readiness work done in time, it appears that these utilities may intend to modify their existing contingency plans to specifically mention the Y2K problem and have not completed the update.

- **Cost of Y2K Compliance**: As one would expect, the survey data indicates that the cost of Y2K compliance increases with system size. 39 percent of the utilities expect to spend less than $10,000 to become Year 2000 compliant; 26 percent of the utilities expect to spend $10,000 - $50,000 to become Year 2000 compliant; 8 percent of the utilities expect to spend $50,000 - $100,000 to become Year 2000 compliant; 10 percent of the utilities expect to spend $100,000 - $1,000,000 to become Year 2000 compliant; 4 percent of the utilities expect to spend over $1,000,000 to become Year 2000 compliant. No estimated total national projection of cost of Y2K compliance can be determined from the survey data. A more refined survey and analysis in conjunction with the total number of public water systems in each size category would be necessary.

- **Tentative Indications**: The majority of community public water systems appear to be addressing the Y2K problem. The survey seems to indicate that the overwhelming majority of the American people will not have their drinking water supply disrupted or made unsafe by internal Y2K computer problems of a community public water system. There is less certainty concerning how external Y2K factors will affect community public water systems. However, existing utility contingency plans could mitigate potential Y2K caused problems.

AWWA and NAWC Association Y2K Efforts

Both AWWA and NAWC, as well as other drinking water organizations, have recognized the potential affect of the Y2K computer problem on the operations of public water systems. In addition to conducting the Y2K preparedness survey of our members, AWWA and NAWC have provided information to member utilities in their publications. NAWC has published articles in its NewsFlow newsletter and in its Water Magazine. AWWA has published articles in its newspapers, MainStream and Opflow, and in the peer reviewed AWWA Journal. These publications reach over 4,000 water utilities and the 55,000 individual members of AWWA. Additionally, AWWA has designated a staff position to direct and coordinate AWWA Y2K activities, created an internet Y2K page with a discussion forum to exchange information on Y2K issues on the AWWA website at http://www.awwa.org, and held a workshop on Y2K issues at the annual AWWA Information Management and Technology Conference. AWWA and NAWC are continuing efforts to get Y2K information to public water systems that may not be aware of the potential effect on their operations.

This concludes the AWWA and NAWC statement on the Year 2000 technology problem. I would be pleased to answer any questions or provide additional material for the committee.